2013 Burden of Oral Disease in Kansas

An Assessment of the Oral Health Status of the State of Kansas

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Kansas Department of Health and Environment

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This summary of oral health status in Kansas has been collected and provided to you through the Kansas Department of Health and Environment Oral Health Surveillance Program. Through a cooperative agreement with the CDC, the Kansas Bureau of Oral Health works to collect and analyze data on the oral health of Kansans in order to identify unmet needs, document oral health improvements, and monitor disease trends.

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- Kansas Head Start Association
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Introduction

Oral health is an important facet of overall physical health and an important part of community health assessment. Oral health is more than just white teeth. Oral health includes the health of teeth, gingiva (gums), the hard and soft palate, the lining of the mouth and throat, lips, salivary glands, upper and lower jaws, and all muscles and ligaments associated with these structures. The mouth is also connected to overall physical health and can be an indicator for chronic diseases. Current research suggests links between periodontal (gum) disease and poor blood-glucose management, cardiovascular disease, respiratory disease, and poor pregnancy outcomes. [1] [2] [3] [4]

Good oral health requires a comprehensive approach that includes access to oral health professionals, proper daily home-care, a healthy diet, and access to an optimally fluoridated community water source or appropriate fluoride supplementation. In order to improve oral health in Kansas, a comprehensive effort is needed on the part of all individuals, professionals, communities, and governing bodies.

Oral health surveillance is an important activity in achieving optimal oral health in Kansas. The goals of this publication are to: 1) Document the overall importance of oral health; 2) Summarize the most important information regarding oral health status in Kansas; 3) Discuss key preventive initiatives currently utilized in Kansas; 4) Detail access to oral health professional care throughout Kansas and 5) Discuss oral health disparities.

National and State Oral Health Objectives

The Kansas Department of Public Health is responsible for monitoring the state's progress toward national and state health indicators. The Bureau of Oral Health works specifically on all objectives related to oral health topics. The Bureau collects data that specifically relates to national goals and objectives so the oral health of Kansans can be compared to national oral health standards. The Bureau also monitors the state's oral health goals and objectives, in order to monitor our progress and to identify unmet needs.

Healthy People 2020

Healthy People 2020 is a disease prevention and health promotion initiative that is sponsored by the U.S. Department of Health and Human Services. Every ten years, the program sets public health objectives for the United States to reach by the end of the following decade (Appendix I). Healthy People 2020 contains 42 topic areas with nearly 600 objectives and over 1,200 measures. A subset of objectives was chosen as Leading Health Indicators in order to focus attention on high-priority health issues and actions that can be taken to address them. In Healthy People 2020, oral health was chosen as a Leading Health Indicator. Healthy People 2020 has 17 oral health objectives. These objectives encompass the oral health of citizens of all ages. The objectives also include measures on dental workforce and the strength of a state's public health infrastructure. Oral health is included in other topic objectives as well, including the number of adults with diabetes that had a dental examination, smokeless tobacco use, and the percentage of oral cancers detected in an early stage. Kansas is currently monitoring 13 of the 17 Healthy People 2020 oral health objectives (Table 1).

Table 1: Healthy People 2020 Oral Health Indicators with U.S. and Kansas Baselines*

Healthy People 2020 Objective		Target	U.S.	Kansas
OH-1	Reduce the proportion of children who have dental caries experience			
	• Children, ages 6-9	49.0%	54.4%	48.0%
OH-2	Reduce the proportion of children who have untreated caries			
	• Children, ages 6-9	25.9%	28.8%	9.5%
	• Adolescents, ages 13-15	15.3%	17.0%	12.8%
OH-4	Reduce the proportion of adults that have ever had a permanent tooth extracted because of caries or periodontal disease			
	• Ages 45-64	68.8%	76.4%	45-54: 45.5% 55-64: 61.0%
	• Adults ages 65-74 who have lost all of their natural teeth	21.6%	24.0%	65+: 17.4%
OH-6	• Increase the proportion of oral and pharyngeal cancers diagnosed at the localized stage	35.8%	32.5%	44.0%
OH-7	• Increase the proportion of children, adolescents, and adults who use the oral health care system each year	49.0%	44.5%	Children: 85.3% Adults: 71.7%
OH-8	• Increase the proportion of low-income children and adolescents ages 2-18 years at or below 200% of federal poverty level who received a preventive dental service in the past year	29.4%	26.7%	39.3%
OH-9	School-based health centers with oral health component that includes:			
	• Dental Sealants	26.5%	24.1%	19.4%
OH-10	• Increase the proportion of Federally Qualified Health Centers (FQHCs) that have an oral health care program	83.0%	75.0%	76.5%
	• Increase the proportion of local health departments that have an oral health prevention or care program	28.4%	25.8%	35.6%
OH-11	• Increase the proportion of FQHC patients who receive oral health services at FQHCs	33.3%	17.5%	35.4%
OH-12	Increase the proportion of children who have received dental sealants on one or more molar teeth			
	• Children ages 6-9 years – Permanent first molar teeth	28.1%	25.5%	35.7%
	• Adolescents ages 13-15 years – Permanent second molar teeth	21.9%	19.9%	41.7%
OH-13	• Increase the proportion of U.S./State Population served by community water systems that received optimally fluoridated water	79.6%	72.4%	63.8%
OH-16	• Increase the number of states with and oral and craniofacial health surveillance system	51	32	Yes
OH-17	• Increase the number of states and local jurisdictions of 250,000 or more persons with a dental public health program directed by a dental professional with public health training	25.7%	23.4%	KS - yes
	• Increase the number of Indian Health Service Areas and Tribal health programs that serve 30,000 or more persons with a dental public health program directed by a dental professional with public health training	12	11	0

* **Data sources for state data in this table are provided in Appendix II**

Healthy Kansans

Healthy Kansans, like Healthy People, is Kansas' ten year strategic planning effort to promote good health and active lifestyles. Unlike Healthy People 2020, Healthy Kansans uses a more general approach, using cross cutting themes under three broad themes. An overview is included in Appendix III. There are not specific oral health objectives or measures in Healthy Kansans, but oral health is relevant to all three of the cross cutting themes: Healthy Living, Healthy Communities and Access to Services. Specific strategies under themes associated with oral health are listed below.

- Healthy Living
    - Promote healthy eating
    - Promote tobacco use and control
- Healthy Communities
    - Promote access to healthy food and policies that promote healthy food choices
    - Promote environments and community design that impact health and support healthy behaviors
- Access to Services
    - Improve access to services that address the root causes to poor health
    - Promote integrated health care delivery, including integrated behavioral health, social services, and primary care.

2011-2014 Kansas Oral Health Plan

The Kansas Oral Health Plan is a collaboratively drafted three year strategic plan for state oral health improvement. The oral health plan contains three sections: Education, Advocacy and Workforce. Within each section there are broad strategies and specific activities (Appendix III). All strategies have an associated responsible party. The plan also includes Healthy People 2020 oral health objectives that are relevant to the strategies and activities.

- Section One - Educate Kansas That Good Oral Health Is Essential to Overall Wellness
  - Objective One – Create Meaningful Messages for Target Audiences about Oral Health
  - Objective Two – Integrate Oral Health into All Disease Prevention Programs
  - Objective Three – Educate All Health Care and Social Service Providers about Oral Health

- Section Two - Advocate for Better Oral Health for All Populations
  - Objective One - Reduce Barriers to Oral Health Access by Including Oral Health Treatment and Prevention in All Publically Funded Health Programs
  - Objective Two – Increase the Number of Kansans with a Fluoridated Community Water Supply
  - Objective Three – Sustain the State Oral Health Advocacy Organization, Oral Health Kansas, Inc.
  - Objective Four – Maintain an Oral Health Surveillance System to Monitor Progress and Educate Policy Makers about the Oral Health Status of Kansans

- Section Three: Ensure that the Kansas Dental Professional Workforce Can Meet the Oral Needs of All Kansans
  - Objective One – Utilize Dentists and Dental Hygienists to Reduce the Burden of Oral Disease in Kansas by Increasing the Number of Dentists and Hygienists Treating Underserved Populations
  - Objective Two – Explore the Potential of New Dental Practitioners to Improve Access in Kansas

Child and Adolescent Oral Health

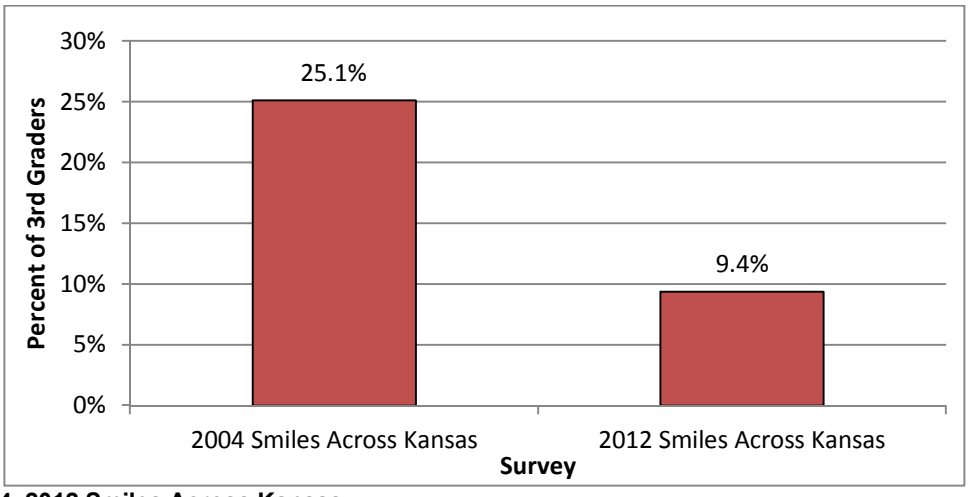
Dental Caries

Dental caries, commonly known as dental decay, presents a serious problem for children and adolescents in the United States. Dental caries is an infectious disease process that occurs when intraoral bacteria feeding on carbohydrates produce acid. This acid causes the demineralization of teeth, leading to tooth destruction, infection and pain. Caries can occur on both the crowns and roots of teeth. [5] Dental caries affects more children than any other chronic disease; it is five times more common than asthma and seven times more common than hay fever. [6] Dental caries in school children can affect school attendance and exacerbate learning and behavior management difficulties. [7] Poor oral health in children has been associated with decreased school performance [7], poor social relationships [8], and less success later in life. [7]

National data on children's dental caries is collected by the National Health and Nutrition Examination Survey (NHANES). In the 2009-2010 NHANES survey, the prevalence of untreated dental caries among children ages 6-9 was 17.0%. [9] This is a considerable reduction from 2003-2004, when the prevalence was over 25%. [9]

Similarly, Kansas has made progress with respect to child and adolescent oral health. Kansas measures children's oral health through the Basic Screening Survey, Smiles Across Kansas (Appendix V).The 2012 Smiles Across Kansas oral health survey reported untreated dental caries in 9.4% of Kansas third graders. [10] This is a significant improvement from the 2004 Smiles Across Kansas survey, and is well below the Healthy People 2020 target of 25.9% (Figure 1).

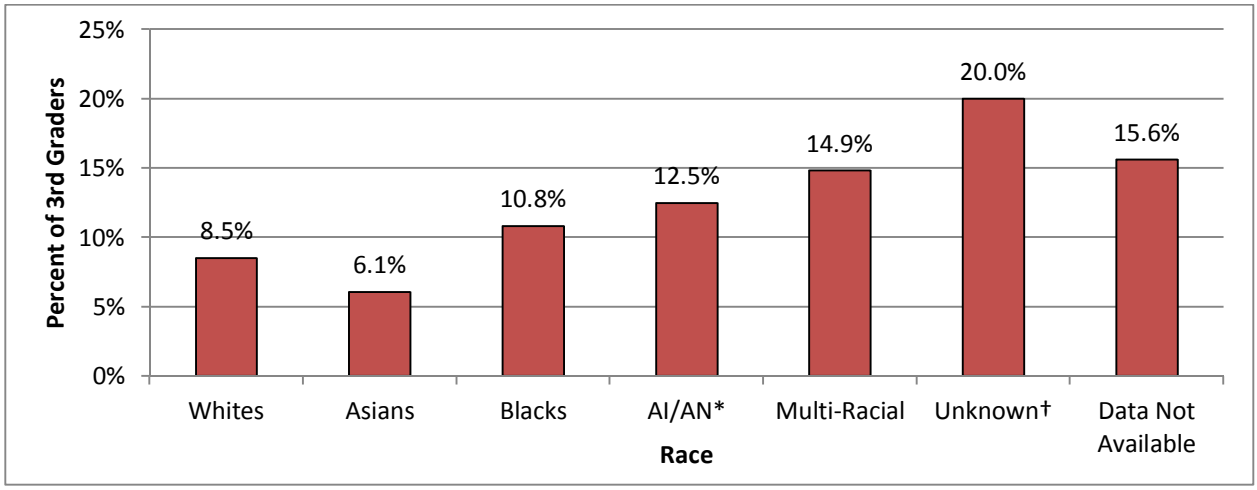
Figure 1: Percent of Kansas 3rd Graders with Untreated Dental Caries, 2004, 2012



Source: 2004, 2012 Smiles Across Kansas

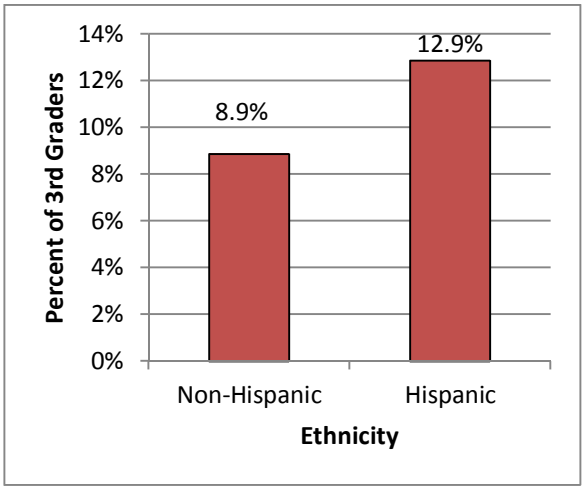
National data suggests that dental caries is more prevalent in certain minority groups. That is true in Kansas as well, but all population groups were still below the Healthy People 2020 targets (Figure 2 and 3).

Figure 2: Percent of Kansas 3rd Graders with Untreated Dental Caries by Race



Source: 2012 Smiles Across Kansas
*** - American Indian / Alaskan Native**
† - Sample considered unreliable, numerator less than 20

Figure 3: Percent of Kansas 3rd Graders with Untreated Dental Caries by Ethnicity

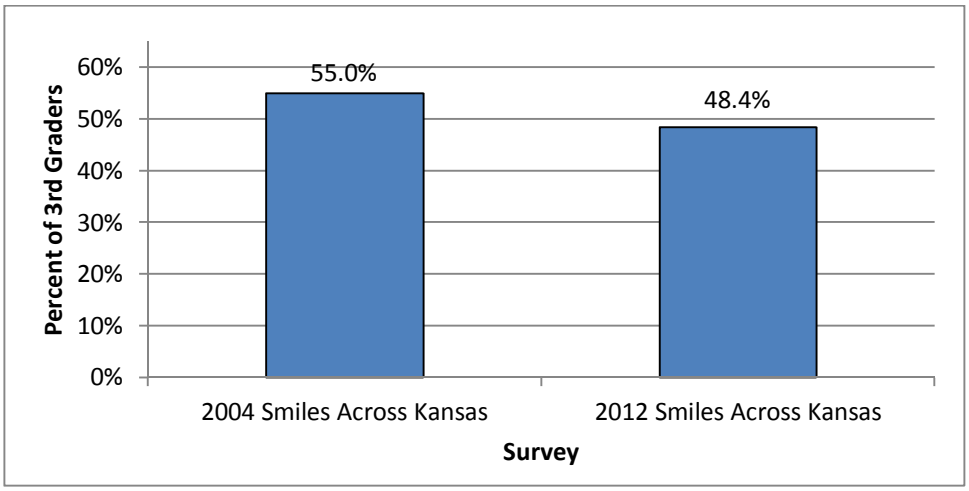


Source: 2012 Smiles Across Kansas

Caries Experience

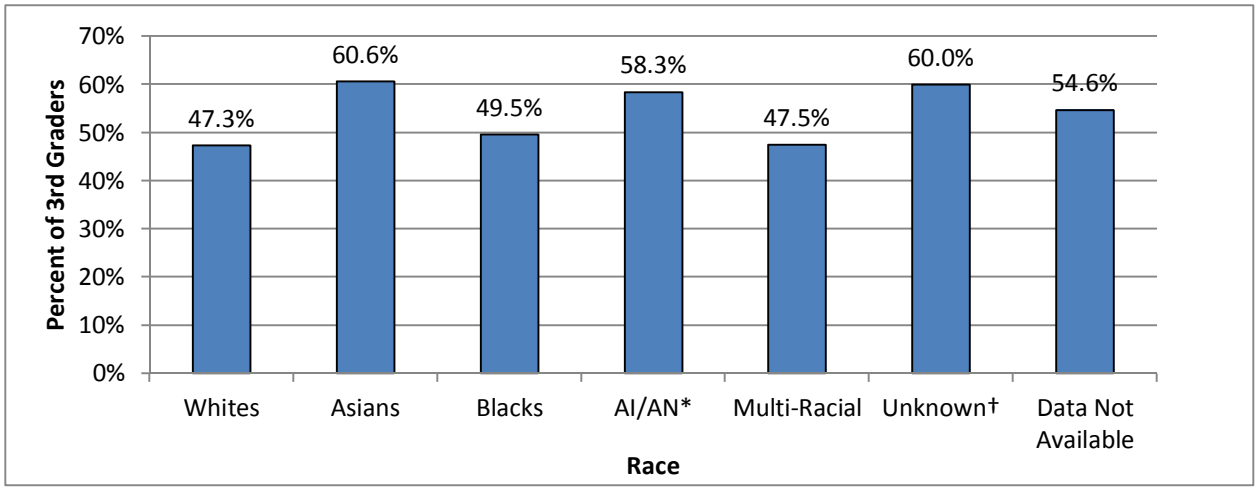
Another national indicator is caries experience, which includes both untreated dental decay and teeth that have been restored due to past dental caries. This indicator reflects the total prevalence of dental caries in a population regardless of the amount of dental treatment completed to eradicate the condition. Kansas continues to improve in the reduction of third graders with caries experience since the first Smiles Across Kansas survey in 2004 (Figure 4). The 2012 data indicates that Kansas has met the Healthy People 2020 target of 49%. [11] Although the state has made significant improvement in reducing both the amount of untreated decay and treating the existing decay in third graders, the prevalence of caries experience indicates that dental caries continues to be an issue for children in Kansas. Breaking out the indicator by race/ethnicity, it is concerning that there is a significantly higher prevalence of caries experience among Hispanics when compared to non-Hispanics (Figure 6). [10]

Figure 4: Percent of Kansas 3rd Graders with Dental Caries Experience, 2004, 2012



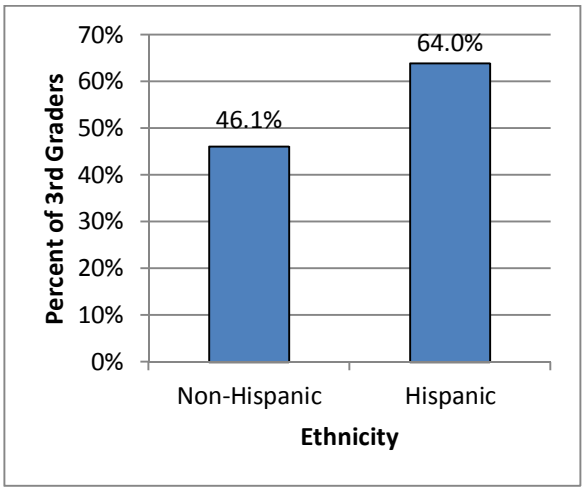
Source: 2004, 2012 Smiles Across Kansas

Figure 5: Percent of Kansas 3rd Graders with Dental Caries Experience by Race



Source: 2012 Smiles Across Kansas
*** - American Indian / Alaskan Native**
† - Sample considered unreliable, numerator less than 20

Figure 6: Percent of Kansas 3rd Graders with Dental Caries Experience by Ethnicity



Source: 2012 Smiles Across Kansas

Kansas School Screening Program

Kansas collects oral health data on children through the School Screening Program (Appendix V). State law requires every child to have an annual "dental inspection" during the school year (K.S.A. 72-5201). Since 2007, the Bureau of Oral Health has used these inspections as way to collect data on children in grades K-12 (Table 2). In the 2011-2012 academic year, over 140,000 children received an oral health screening. These data are available to the public and can be sorted by county, school district, and school. The school screenings use the same indicators as the Smiles Across Kansas survey, but are two distinct datasets with different uses (Table 3). The Smiles Across Kansas Survey is a statistical sample of Kansas third grade children that is submitted to the National Oral Health Surveillance System (NOHSS). The Screening Program data is a large convenience sample of all school children K-12 that is used for state and local programmatic decisions and evaluation.

Table 2: A Comparison of Kansas Child Oral Health Data, 2011-12

Oral Health Indicator	Data Source	KS Statistic
% of Children with Untreated Dental Caries	2011-2012 Kansas School Screening Program (K-12)	17.6%
	2012 Smiles Across Kansas (3rd Grade)	9.4%
% of Children with Urgent Dental Needs	2011-2012 Kansas School Screening Program (3-12)	2.5%
	2012 Smiles Across Kansas (3rd Grade)	1.7%

The Kansas School Screening Program has been collecting data since the 2008-2009 school year. Every year the size of the program increases, providing valuable data on children in Kansas public and private schools (Table 3).

Table 3: Kansas School Screening Program Data, 2008-12

Oral Health Indicator	2011-2012		2010-2011		2009-2010		2008-2009	
Untreated Decay Yes	24,770	17.6%	24,056	19.4%	16,444	21.9%	13,505	24.3%
Untreated Decay No	115,731	82.4%	99,955	80.6%	58,726	78.1%	42,164	75.7%
Treated Decay Yes	55,966	39.8%	49,704	40.1%	28,588	38.0%	23,083	41.5%
Treated Decay No	84,537	60.2%	74,307	59.9%	46,587	62.0%	32,440	58.3%
Sealants Present Yes (3-12th)	35,476	38.8%	29,456	36.8%	15,153	33.2%	11,756	34.1%
Sealants Present No (3-12th)	56,857	61.2%	50,307	62.9%	30,377	66.5%	22,444	65.0%
Urgent care	4133	2.9%	3651	2.9%	3,019	4.0%	2,312	4.2%
Total Students Screened (K-12)	140,503		124,011		75,175		55,688	
Total Students Screened (3-12th)	92,177		79,946		45,691		34,511	
# of Counties Screened	88		87		63		50	
# of Public Schools Screened	614		539		327		234	
% of Public Schools Screened	45.7%		39.4%		23.7%		16.8%	
# of Public Schools in KS*	1345		1367		1380		1393	
# of Non-Public Screened	20		13		13		16	
% of Non-Public Schools screened	14.7%		9.6%		8.8%		Not Reported	
# of Non-Public Schools in KS*	136		136		147		-	

Source: Kansas School Screening Program, 2008-2012
*** Number of total schools in Kansas Came from reports provided by the Kansas Department of Education at http://www.ksde.org/Default.aspx?tabid=1870. For school years 11-12 and 10-11, Central Office Buildings were reported by KDE and were filtered out of the school totals for the purpose of this report.**

Once of the major advantages of the School Screening data is its ability to target certain geographic areas. By identifying areas with higher oral health needs, the Bureau can target interventions to address the high disease rates. We can also compare urban and rural parts of the state. Table 4 contains data on Kansas' most populous counties: Sedgwick (Wichita), Johnson (Kansas City area) and Douglas (Lawrence). Table 5 shows that of the counties with the highest percentage of untreated dental decay, all five are rural or frontier counties. The counties with the lowest percentages of decay (Table 6) include urban, rural and frontier counties.

Table 4: Kansas School Screening Program data for Sedgwick, Johnson, and Douglas Counties, 2011-12

Oral Health Indicator	Sedgwick County		Johnson County		Douglas County	
Untreated Decay Yes	5,501	16.8%	1,658	11.9%	322	15.2%
Untreated Decay No	27,224	83.2%	12,266	88.1%	1,804	84.9%
Treated Decay Yes	14,106	43.1%	4,682	33.6%	819	32.5%
Treated Decay No	18,619	56.9%	9,244	66.4%	1,307	61.5%
Sealants Present Yes (3-12th)	9,747	46.4%	3,243	39.6%	644	47.7%
Sealants Present No (3-12)	11,256	53.6%	4,938	60.4%	707	52.3%
Urgent care	1,135	3.5%	272	2.0%	29	1.4%
Total Students Screened K-12	32,725		13,926		2,126	
Total Students Screened 3rd-12th	21,003		8,181		1,351	

Source: Kansas School Screening Program, 2011-2012

Table 5: Kansas Counties with Highest Percentage of Untreated Dental Decay among K-12th Graders, 2011-12

County	# Untreated Decay	# Total Screened	% Untreated Decay
Ford	1,030	2,987	34.5%
Elk	43	129	33.3%
Labette	705	2,186	32.3%
Cherokee	688	2,224	30.9%
Finney	1,337	4,364	30.6%

Source: Kansas School Screening Program, 2011-2012

Table 6: Kansas Counties with Lowest Percentage of Untreated Dental Decay among K-12th Graders, 2011-12

County	# Untreated Decay	# Total Screened	% Untreated Decay
Rice	18	296	6.1%
Leavenworth	98	1,369	7.2%
Riley	344	4,256	8.1%
Marshall	93	1,106	8.4%
Rawlins	23	268	8.6%

Source: Kansas School Screening Program, 2011-2012

Head Start Program

Head Start programs provide comprehensive education, health, nutrition, and parental involvement services to low-income children and their families. It serves children between three and five years of age, with Early Head Start serving children from birth to age three. Many states have Head Start initiatives designed to promote good oral health in this population. The Kansas Head Start Association conducts an oral health program referred to as "Kansas Cavity Free Kids." Between May 2011 and May 2012, 2,541 children received preventive services through Kansas Cavity Free Kids. Kansas Head Start data reports that, in 2011-2012, 95.6% of children enrolled in Head Start have a dental home. The percentage of Kansas preschool-aged children enrolled in the Kansas Head Start Program who had received preventive care was 88.0%, higher than the national average of 84.6%. [12]

Federal Head Start regulations require a child to have a dental exam to be completed within the first 90 days of enrollment. These exams documented that 20.8% of preschool-aged children entering Kansas Head Start required dental treatment. Kansas is slightly higher than the 20.0% national average (Table 7). Of the children that were identified as needing treatment, 80.2% received the treatment, similar to the national average of 80.9% (Table 7). [12]

Table 7: Percentage of Kansas Children Receiving Oral Health Care through the Head Start Program, 2011-12

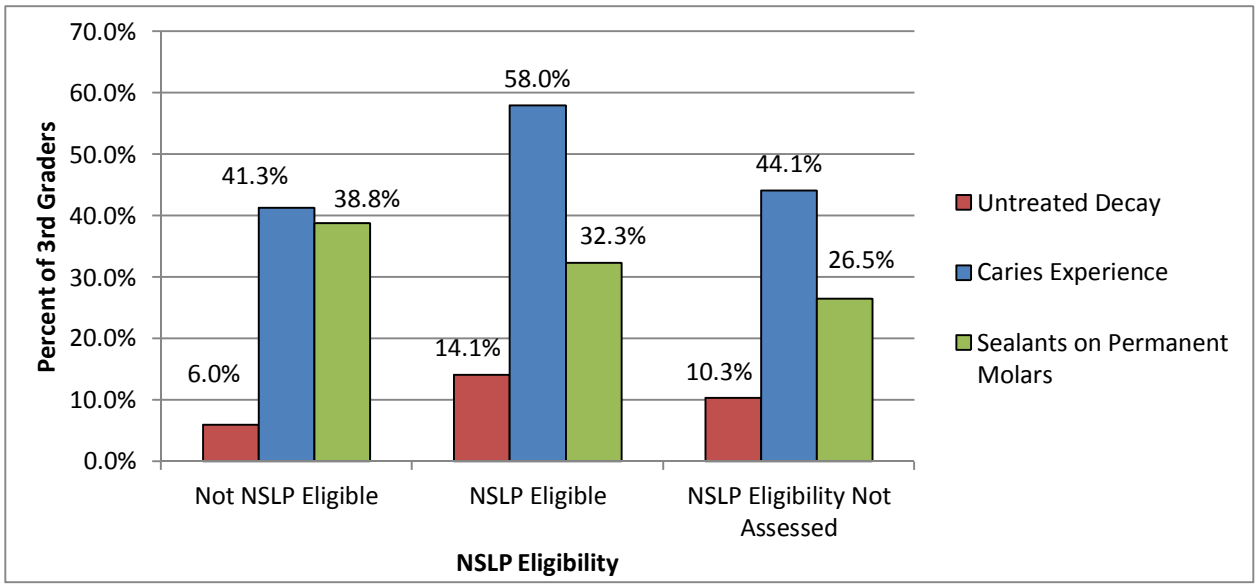
	Preschool Completed Dental Exam	Preschool Needed Treatment	Preschool Received Treatment
Kansas	82.3%	20.8%	80.2%
National	87.3%	20.0%	80.9%

Source: Head Start, 2012

Children's Oral Health in Low Income Families

Oral health among children from low-income families is a particular concern, because they tend to have higher decay rates and utilize professional dental care less frequently than higher-income families. [9] [13] The National School Lunch Program (NSLP) program provides nutritionally-balanced low-cost or free lunches to more than 31 million children each day. The children who participate come from families that are below 185% of the Federal Poverty Level (FPL). [14] Eligibility status for NSLP is often used as a proxy for socio-economic status. Kansas children in lower income families did have significantly more untreated decay, higher caries experience, and fewer sealants than children in high income families (Figure 7).

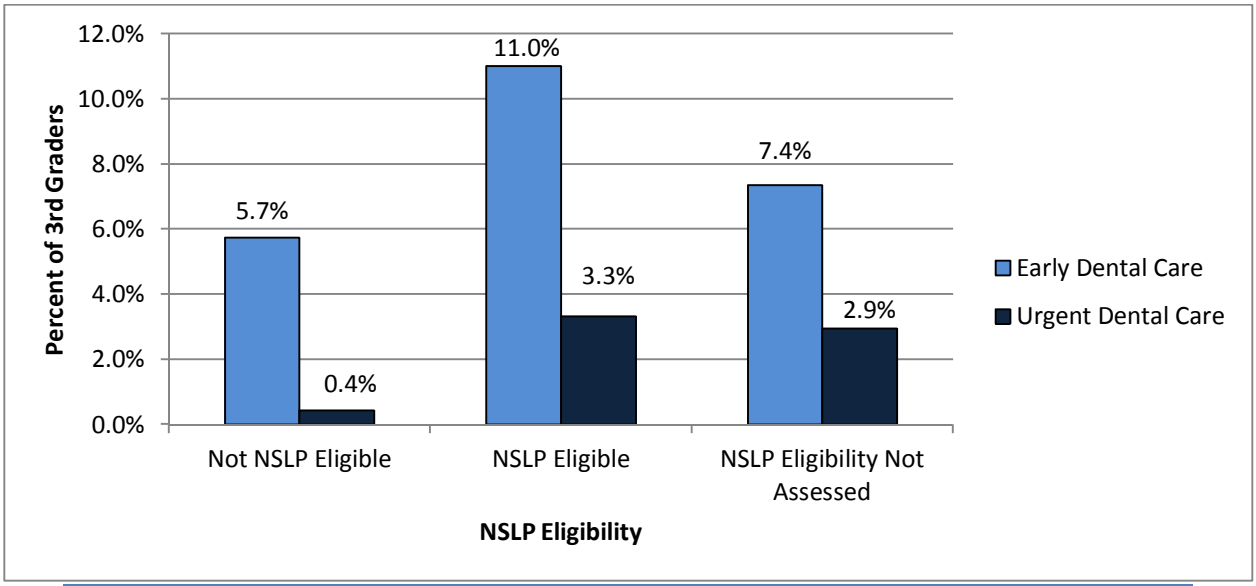
Figure 7: Oral Health Care Status among Kansas 3rd Graders with Respect to Eligibility for the National School Lunch Program



Source: 2012 Smiles Across Kansas

Children eligible for the NSLP program were significantly more likely to be in need of both early and urgent dental care compared to children who were not eligible for the NSLP (Figure 8). As these children are also eligible for the Kansas Medicaid program that has full dental benefits, this information suggests that more effort needs to be made to increase Medicaid dental utilization in eligible Kansas school children.

Figure 8: Treatment Urgency and National School Lunch Program Eligibility



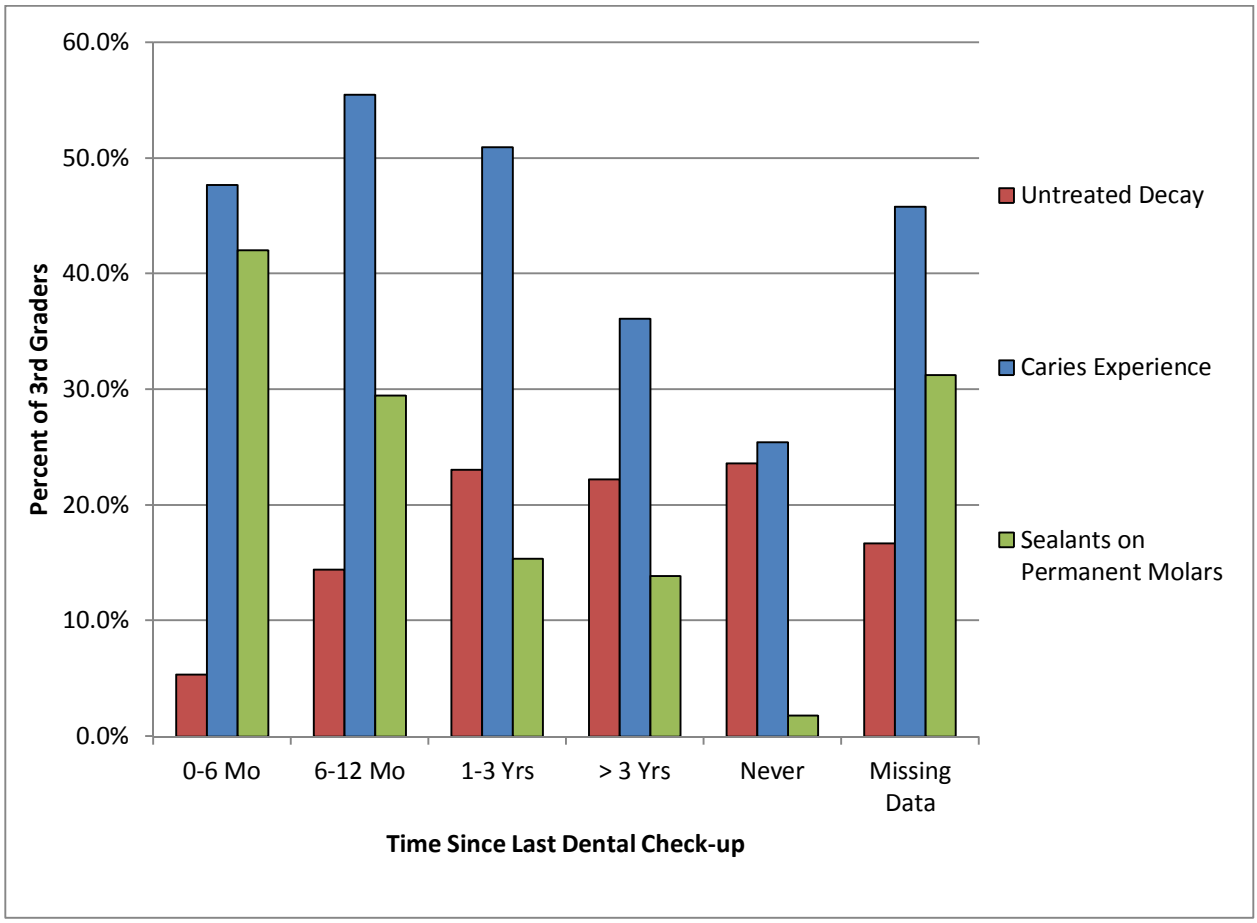
National School Lunch Program (NSLP) Eligibility	No Problems	Early Dental Care	Urgent Dental Care
Not NSLP Eligible	93.8%	5.7%	0.4%
NSLP Eligible	85.7%	11.0%	3.3%
NSLP Eligibility Unknown	89.7%	7.4%	2.9%

Source: 2012 Smiles Across Kansas

Oral Health Care Utilization

Professional dental visits and good home care are critical to good oral health. In the 2012 Smiles Across Kansas report, parents and guardians were asked about their child's last visit to an oral health care provider. The data indicated that the longer the time period between dental visits, the greater the percentage of children that had untreated dental decay. Oral health problems were found to be most prevalent in those who had never been to a dentist before, with 23.6% having untreated dental caries (Figure 9). Among children who have ever had a dental visit, there is a direct relationship between the time since the last dental check-up and the need for early dental care (Figure 10). The population with the highest percentage of children with no noticeable problems was the group of children who had a dental check-up within the last 6 months (94.3%) (Figure 10). [10]

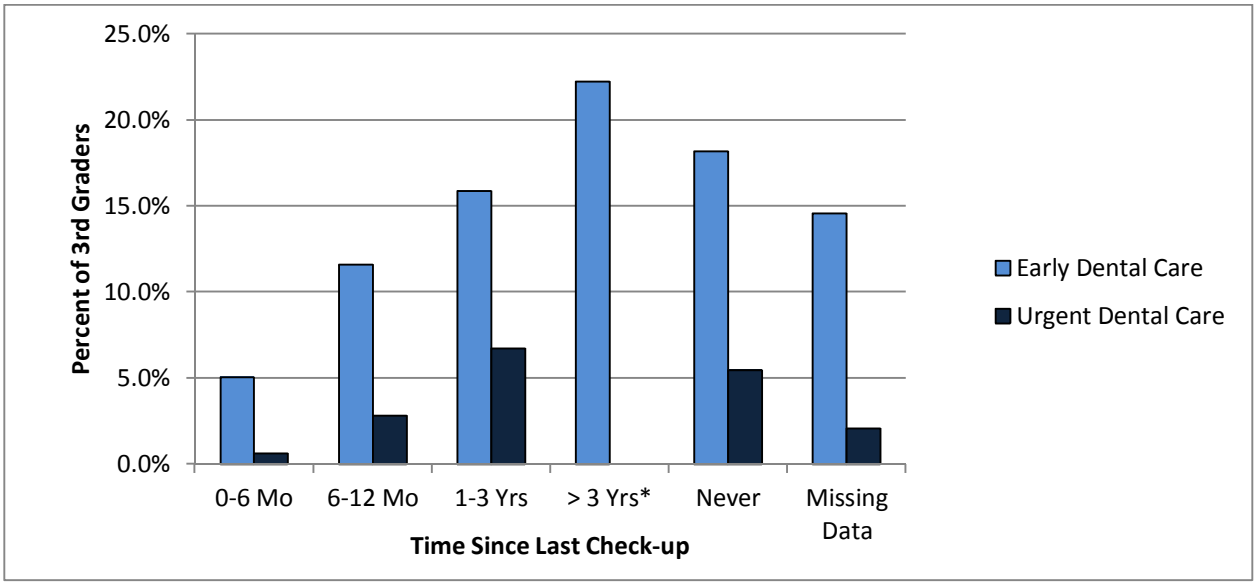
Figure 9: Oral Health Care Status among Kansas 3rd Graders with Respect to Time Since Last Dental Check-up



Source: 2012 Smiles Across Kansas

Time Since Last Dental Check-up	Untreated Caries	Treated Caries	Sealants on Permanent Molars
0-6 Months	5.3%	47.7%	42.1%
6-12 Months	14.4%	55.5%	29.5%
1-3 Years	23.1%	51.0%	15.4%
> 3 Years	22.2%	36.1%	13.9%
Never	23.6%	25.5%	1.8%
Missing Data	16.7%	45.8%	31.3%

Figure 10: Treatment Recommendations for Kansas 3rd Graders with Respect to Time Since Last Dental Check-up



Time Since Last Dental Check-up	No Problems	Early Dental Care	Urgent Dental Care
0-6 Months	94.3%	5.1%	0.6%
6-12 Months	85.6%	11.6%	2.8%
1-3 Years	77.4%	15.9%	6.7%
> 3 Years	77.8%	22.2%	0.0%*
Never	76.4%	18.2%	5.5%
Missing Data	83.3%	14.6%	2.1%

Source: 2012 Smiles Across Kansas
*** - Of the 36 children who had not seen a dentist in more than 3 years, 0 had urgent dental care needs**

Looking at Kansas third graders assessed in 2012 Smiles Across Kansas survey, of the 299 children who had not had a dental examination in the previous 12 months, 64 of the parents/guardians (21.4%) reported that there was a time when the child needed dental care, but could not get it. Among the top reasons for not seeking dental care were not being able to afford it and not having insurance to cover the visit (Table 8). [10]

Table 8: Reasons for Parents/guardians not Seeking Oral Health Care for Children in the Past 12 Months

Reason	N	%
Could not afford it	31	48.4%
No insurance	21	32.8%
Dentist did not take Medicaid/insurance	4	6.3%
Difficulty in getting appointment	3	4.7%
Speak a different language	2	3.1%
Didn't know where to go	1	1.6%
Not a serious enough problem	1	1.6%
Don't like/trust/believe in dentists	1	1.6%

Source: 2012 Smiles Across Kansas

Medicaid Utilization

The Medicaid program (Title XIX) and the Children's Health Insurance Program (CHIP – Title XXI) are jointly funded by the federal and state governments to assist low income families and disabled adults in obtaining medical, dental, and long-term health care coverage. Federal law requires states to provide all children with all medically necessary procedures under the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program. In Kansas, 258,446 children were enrolled in Medicaid (Title XIX) for at least one month and 61,927 children were enrolled in the Children's Health Insurance Program (Title XIX) for at least one month in SFY 2010-2011. Among the 209,386 Medicaid enrollees in 2010-2011, 107,869 children received a dental or oral health service (Table 9).

Table 9: Medicaid Enrolled Children Receiving Dental Services, Kansas 2011

Medicaid Billing Category	Population Served	% of Total Enrolled in Medicaid
Total Eligible Children Receiving Any Dental or Oral Health Service	107,869	51.5%
Total Eligible Children Receiving Dental Diagnostic Services	93,935	44.9%
Total Eligible Children Receiving Any Dental Services	98,366	47.0%
Total Eligible Children Receiving Preventive Dental Services	91,390	43.6%
Total Eligible Children Receiving a Sealant on a Permanent Molar	26,375	12.6%

Source: Division of Health Care Finance, Kansas Department of Health and Environment

Adult and Senior Oral Health

Oral Disease

People experience oral disease throughout their lifespan. Although children and adolescents are the most common focus of oral public health interventions, oral disease in adults and seniors is common (Table 10). In the United States, employed adults lose more than 164 million hours of work each year due to oral health problems or dental visits. [15] In addition to dental caries, periodontal disease and oral cancers are more frequently seen in adults.

Table 10: Oral Health Status of Adults in the United States

Oral Health Indicator	Age Group	U.S. Statistic	Data Source
% of Adults with Caries Experience	20-34 years	85.6%	1999-2004 National Health and Nutrition Examination Survey (NHANES)
	35-49 years	94.3%	
	50-64 years	95.6%	
% of Adults with Untreated Caries	20-64 years	23.7%	2005-2008 NHANES
	65-74 years	19.6%	2005-2008 NHANES
% of Adults with Periodontal Disease	20-34 years	3.8%	1999-2004 NHANES
	35-49 years	10.4%	
	50-64 years	11.9%	
% of Adults Who Have Lost All of Their Permanent Teeth	45-64 years	7.3%	National Health Interview Survey (NHIS), 2010
	65+ years	24.3%	

Data collection in adult populations is difficult. In the surveillance of children, schools provide an opportunity to assess children of almost every demographic. Adults do not have an equivalent of school where individuals from every demographic convene. Voluntary surveys, such as the Behavioral Risk Factor Surveillance System (BRFSS) and the National Health and Nutrition Examination Survey (NHANES), are the best data collection methods available for adult populations. In Kansas, BRFSS collects some information on oral health indicators through both core and state-added questions, making it one of the only data sources for adult oral health status (Table 11).

Table 11: Oral Health Status of Kansas Adults Measured by the Behavioral Risk Factor Surveillance System

Oral Health Indicator	Age Group	KS Statistic	Data Source
% of Adults with Untreated Caries	18+ years	39.0%	2002 BRFSS
% of Adults with Loss/Extraction of a Permanent Tooth	18+ years	40.9%	2010 BRFSS
% of Adults Who Have Lost All of Their Permanent Teeth	18+ years	5.5%	2010 BRFSS
	65+ years	17.4%	2010 BRFSS
% of Adults Who Needed Dental Care in the Past 12 Months, but Did Not Get It	18+ years	17.2%	2011 BRFSS
% of Adults Without Any Kind of Insurance Coverage that Pays for Oral Health Care	18+ years	36.3%	2011 BRFSS
% of Adults Who Have Not Seen an Oral Health Care Professional in 12+ Months	18+ years	27.2%	2011 BRFSS

Adult Oral Health Care Utilization

National and state data indicate that not all people see a dentist on a regular basis. Nationally, only 64.9% of Americans have been to a dentist or a dental clinic in the past year and 11.4% reported that they had not been to a dentist or dental clinic in 5 or more years. [16] Kansas reported 67.3% of individuals visiting a dentist or dental clinic in the last year and 13% of individuals not having been in 5 or more years. [17] Reports of having a teeth cleaning were slightly higher with 67.9% of Americans and 72.8% of Kansans having a teeth cleaning in the last year. [18] Utilization of the oral health care system is dependent upon an individual's ability to pay for services. [19] In Kansas, 38.7% of all adults over the age of 18 and 57.1% of adults over the age of 65 reported not having dental insurance. [17] In recent years, the percentage of Kansans not seeking needed oral health care has increased (Table 12) with financial reasons cited as the most common reason for which individuals did not seek care (Table 13).

Table 12: During the Past 12 Months, Was there Any Time when You Needed Dental Care but Did Not Get It?

	2001	2004	2006	2008	2009	2010	2011
% Yes	11.0%	9.4%	11.3%	11.4%	13.4%	11.3%	17.2%
% No	89.0%	90.6%	88.7%	88.6%	86.6%	88.7%	82.8%
Standard Error	1	1.2	1.2	1.4	1	1.4	1.6
N=	4333	4052	4114	4193	9477	4183	8150

Source: Behavioral Risk Factor Surveillance System, 2001-2011

Table 13: What was the Main Reason You Did Not Receive the Dental Care You Needed?

	2008	2009	2010	2011
Fear, apprehension, nervousness, pain, dislike going	4.3%	3.9%	6.2%	4.7%
Could not afford/cost/too expensive	74.8%	78.7%	78.2%	81.8%
Dentist would not accept my insurance, including Medicaid	6.5%	2.6%	4.7%	2.7%
Do not have/know a dentist	1.4%	1.3%	0.2%	1.9%
Lack transportation / too far away	0.2%	1.3%	1.6%	0.5%
Hours are not convenient	6.3%	4.6%	3.5%	3.3%
Do not have time	1.2%	1.8%	1.7%	1.5%
Other ailments prevent dental care	1.3%	0.3%	0.1%	0.6%
Could not get into dentist/clinic	0.2%	0.8%	1.0%	0.1%
Other	3.9%	4.6%	2.7%	2.9%

Source: Behavioral Risk Factor Surveillance System, 2001-2011

In order to address the issue of unmet dental needs of Kansans, the Kansas Dental Charitable Foundation (KDCF) hosts the Kansas Mission of Mercy (KMOM) dental clinics. These events are free dental clinics hosted in varied locations over a weekend once a year. Since 2003, 21,317 individuals have been treated, totaling over $11 million in dental care. [20] A large

majority of the individuals utilizing the dental clinics were uninsured and had not been to the dentist recently. In 2008, almost 78% of KMOM clinic patients had not visited a dentist in the past year and almost 46% had not visited a dentist in over two years. An additional 15% reported never having visited a dentist prior to the clinic. Most of these individuals in attendance cited financial barriers, including a lack of dental insurance (78.2%), as the primary reason that they had not seen a dentist. Of those seen at the 2008 clinics, 40% required further care. [21]

Elder Kansans

Senior populations are at high risk for oral disease. Financial barriers, mobility and dexterity issues, and complicated medical histories often put them at increased risk for dental problems. This is especially true for nursing facility residents. In a 2012 survey of Kansas nursing facilities, [22] 34% of residents ages 65 and older had untreated decay with 51.9% between 65 and 74 having untreated decay (Table 14). [22] Periodontal disease is the inflammation and infection that destroys the tissues that support the teeth, including the gingiva, ligaments, and supporting bone structure. Two indicators of periodontal disease are tooth mobility, and gingival inflammation. Among the population sampled, 14.9% experienced tooth mobility while 25.7% had significant gingival inflammation (Table 15). [22]

Table 14: Oral Health Status of Elderly Kansans Living in Nursing Facilities

Oral Health Indicator	Age Group	KS Statistic
% of Adults with Untreated Caries	65-74 years	51.9%
	65+ years	34.0%
% of Adults with Loss/Extraction of a Permanent Tooth	65-74 years	62.0%
% of Adults Who Have Lost All of Their Permanent Teeth	65-74 years	23.9%

Source: Elder Smiles, 2012

Table 15: Oral Health Indicators among Kansas Nursing Home Residents Ages 65 and Older

	Untreated Dental Decay	Root Fragments	Gingival Inflammation	Tooth Mobility	Oral Debris
# No	239	336	269	308	256
% No	66.0%	82.8%	74.3%	85.1%	70.7%
# Yes	123	70	93	54	106
% Yes	34.0%	17.2%	25.7%	14.9%	29.2%

Source: Elder Smiles, 2012

Older Kansans are keeping their teeth longer and the percentage of adults without any natural teeth (edentulism) is on the decline. [17] The prevalence of edentulism among Kansas residents ages 65-74 (18.8%) falls short of the national average noted in NHANES (15.0%) [9] but reaches the Healthy People 2020 goal (21.6%) The number of edentulous adults in nursing facilities is much higher than both of the national indicators, with one third of all of the Kansas nursing facility residents being edentulous (Table 16). [22]

Table 16: Edentulism Oral Health Indicator, Target Level, and Current Status among United States and Kansas Residents Ages 65-74

Source	Percentage
Elder Smiles, 2012 – Nursing Facility Residents	23.9%
Kansas Average (BRFSS), 2012	18.8%
National Average (NHANES), 2009-10	15.0%
Healthy People 2020 Target	21.6%

Source: Elder Smiles 2012, Behavioral Risk Factor Surveillance System 2012, National Health and Nutrition Examination Survey 2009-2010, Healthy People 2020

A large number of nursing facility residents need professional dental treatment (Table 17). The 2012 Elder Smiles report noted that 52.9% of individuals living in nursing facilities had not had a teeth cleaning in more than a year. Of those who did not have a teeth cleaning in the past year, 15.6% stated they did not have financial resources to pay for dental care. [22] 84.3% (n=387) of Kansas nursing facility residents above the age of 65 reported not having dental insurance. [22] 55.4% (n=305) of the surveyed residents were enrolled in Kansas Medicaid which offers minimal dental benefits for adults. Individuals with Medicaid were the least likely resident group to have had a dental visit in the last year (Table 18). [22]

Table 17: Treatment Urgency among Kansas Nursing Home Residents Ages 65 and Older

	Treatment Urgency
No obvious problem	387 71.7%
Early care recommended	132 24.4%
Urgent care recommended	21 3.9%
Total	540 100.0%

Source: Elder Smiles, 2012

Table 18: Dental Visits in the Past 12 Months among Kansas Residents Living in Nursing Facilities and Type of Dental Insurance

Type of Insurance	Dental Visit	No Dental Visit	Percent of Individuals with a Dental Visit
Private Insurance	22	11	66.7%
Medicaid	63	203	23.7%
Both	20	19	51.3%
Neither	73	143	33.8%
Total	178	376	554

Source: Elder Smiles, 2012

Oral Cancer

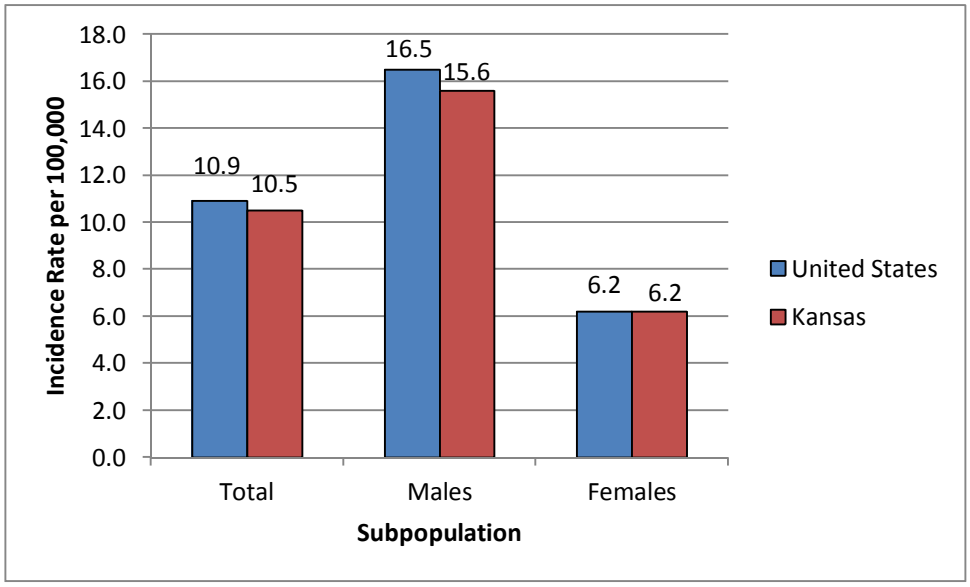
Cancer of the oral cavity and pharynx is the tenth most common cancer in black males and the eighth most common cancer in white males in the United States. [23] Nationally an estimated 40,250 new cases of oral cancer were diagnosed in 2012 and 7,850 oral cancer-related deaths were reported. These accounted for 2.5% of all new cancer cases and 1.4% of all cancer deaths in the United States in 2012. [24] In 2009, Kansas had 318 newly diagnosed cases of oral and pharyngeal cancer (10.5 cases per 100,000 population) (Table 19) and 56 oral cancer-related deaths (1.7 deaths per 100,000 population) (Table 20). [23] [25] The risk of oral cancer is unevenly distributed between males and females in Kansas with males having almost three times the risk (Table 19). In comparison with national incidence rates, in 2009, Kansas experienced a slightly lower incidence per 100,000 population (10.4 vs. 11.2 nationally) with 1.7 fewer deaths per 100,000 population in women (Figure 11).

Table 19: Incidence Rate* of Invasive Oral and Pharyngeal Cancer in Kansas by Year and Sex, 2005-09

Year of Diagnosis	All Races		
	Total	Males	Females
2005	10.2	15.5	5.5
2006	9.9	15.5	5.1
2007	11.3	16.8	6.5
2008	10.7	17.7	4.6
2009	10.5	15.6	6.2

Source: Kansas Cancer Registry
*** - Rates are per 100,000 persons and are age-adjusted to the 2000 U.S. Standard Population**

Figure 11: Incidence Rate* of Oral and Pharyngeal Cancer by Sex in the United States and Kansas, 2009



Source: Kansas Cancer Registry, National Program of Cancer Registries (NPCR), Centers for Disease Control and Prevention
*** - Rates are per 100,000 persons and are age-adjusted to the 2000 U.S. Standard Population**

Incidence rates of oral and pharyngeal cancer have slightly declined in recent years both nationally and in Kansas. [23] [24] Most notable was the decrease of cancer incidence in Kansas' black population, which dropped from 18.9 cases per 100,000 population to 10.4 cases per 100,000 from 1984 to 2009. [26]

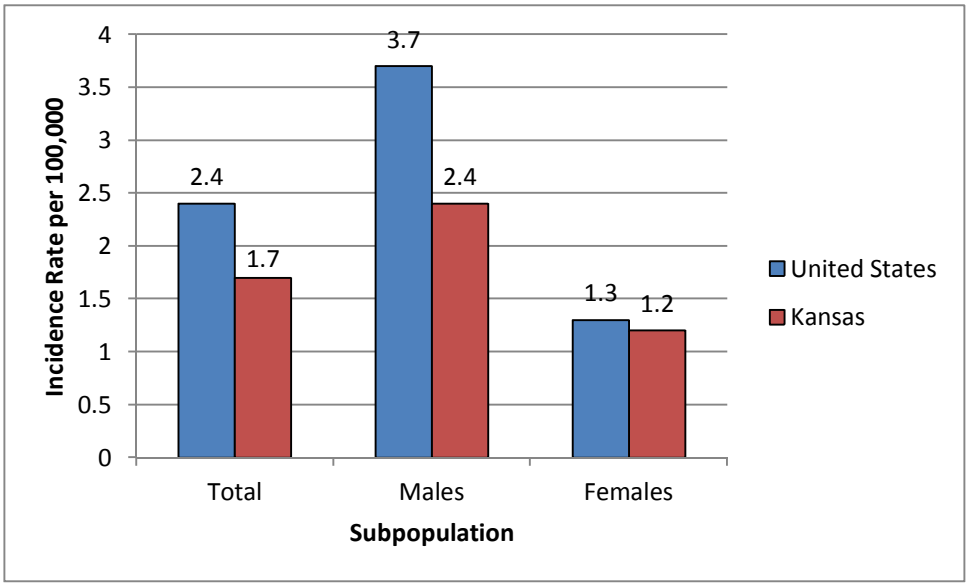
Kansas has relatively low mortality rate from invasive oral and pharyngeal cancer. The 2011 Kansas age-adjusted mortality rate for cancer of the oral cavity and pharynx is in the lowest quantile interval in the country, with only 1.7 deaths per 100,000 population. [25] Between 2005 and 2009, Kansas had one of the lowest rates of oral and pharyngeal cancer deaths in the country (1.9 per 100,000 population), tied with Alaska (1.9 per 100,000) and South Dakota (1.9 per 100,000), and trailing Utah (1.4 per 100,000). [25] [26]

Table 20: Mortality Rate* of Invasive Oral and Pharyngeal Cancer in Kansas by Year and Sex, 2005-09

Year of Diagnosis	All Races		
	Total	Males	Females
2005	2	3.2	~
2006	2.1	3.2	1.2
2007	1.9	2.5	1.3
2008	2	3	1.1
2009	1.7	2.4	1.2

Source: National Program of Cancer Registries
*** - Rates are per 100,000 and are age-adjusted to the 2000 U.S. Standard Population**
~ - Rates are suppressed if fewer than 16 cases were reported in a specific category

Figure 12: Mortality Rate* of Invasive Oral and Pharyngeal Cancer by Sex in the United States and Kansas, 2009



Source: National Program of Cancer Registries (NPCR), Centers for Disease Control and Prevention
*** - Rates are per 100,000 persons and are age-adjusted to the 2000 U.S. Standard Population**

Healthy People 2020 objectives focus on early cancer detection. The national objective regarding oral and pharyngeal cancer is to increase the proportion of oral and pharyngeal

cancers detected at the earliest stage. [11] Of all cancers diagnosed between 2000 and 2009, 2.2% were in the oral cavity or pharynx and, of the cancers that were able to be classified by stage at diagnosis, 43.5% were either *in situ* or localized (Table 21). [25]

Table 21: Number of Cancer Cases by Primary Site and Stage, Kansas Residents, 2000-09

	All Cases	In Situ	Local	Regional	Distant	Unstaged
All Sites	143,030	11,125	61,594	27,906	28,558	13,847
Oral & Pharyngeal Cancer	3,087	84	1,171	1,315	314	203

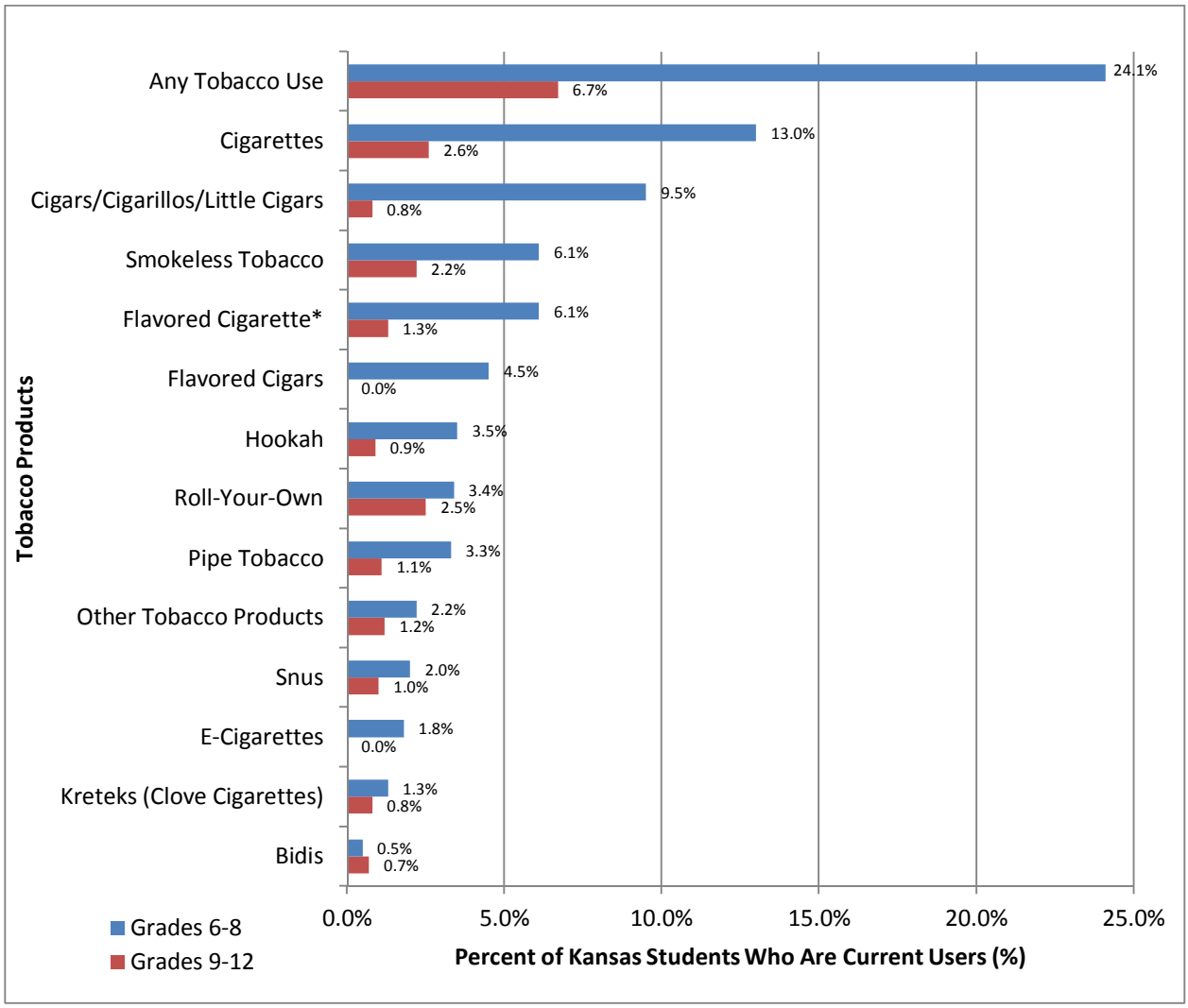
Source: Kansas Cancer Registry

Tobacco Use

Two known risk factors for oral cancer are tobacco and alcohol usage. [27] [28] Current prevalence of tobacco usage among Kansas adults is measured by the Behavioral Risk Factor Surveillance System (BRFSS). Data from 2012 show that 32.3% of Kansas adults smoke cigarettes every day while an additional 12.6% smoke tobacco some days. Additionally, 43.2% of individuals surveyed reported that they have smoked at least 100 cigarettes (5 packs) during their lifetime. [17]

Usage of spit tobacco (chewing tobacco, snuff, and snus) is a serious risk factor for oral cancer. [29] 2012 BRFSS data show that 3.2% of Kansas adults use spit tobacco every day while 2.3% of adults reported using spit tobacco some days. [17] Most tobacco usage begins before the age of 18 [29], leading to increased nicotine dependence and a greater lifelong risk of smoking-related cancers. The 2011-2012 Kansas Youth Tobacco Survey (YTS) examined smoking habits among students in grades 6-8 (middle school) and 9-12 (high school). [30]

Figure 13: Percent of Kansas Youth that Use Tobacco by Product Category, 2011-12



Source: Kansas Youth Tobacco Survey: 2011-2012
***With the exception of menthol, flavored cigarettes are illegal. Students who report using flavored cigarettes are most likely thinking of mentholated cigarettes or flavored cigars, which are often small and sold in packs much like cigarettes**

Prevention and Control of Dental Caries

In the United States, 9 out of 10 individuals over the age of 20 have some degree of dental caries. [31] Dental caries is almost entirely preventable with appropriate evidence based strategies. This section of the document will focus on Kansas' implementation of these strategies.

Fluoride

Fluoride makes tooth enamel stronger so that teeth are less susceptible to the caries process. [32] Fluoride can benefit the dentition when taken systemically as part of an optimally fluoridated community water supply or topically through toothpaste, varnish, rinses, and gels. Topical products like toothpaste and fluoride varnish increase the local concentration of fluoride on teeth and can encourage the re-mineralization of enamel in populations at risk of dental decay. Increased use of all of these products and increased access to fluoridated water has played a major role in the reduction of dental caries the United States. [33]

The Kansas Bureau of Oral Health promotes the use of fluoride varnish on very young populations through the training of medical professionals on its use in well baby exams. This varnish is a concentrated form of fluoride which is painted onto the teeth of an individual by health professionals. Currently, Kansas Medicaid reimburses medical providers who apply fluoride varnish up to three times a year. While most fluoride application to Kansas children under age 5 in FY 2011-2012 was provided through dental providers (86.3%), 68 physicians and 7 advanced nurse practitioners applied varnish in FY 2011-2012.(Table 22 and 23).

Table 22: Medicaid Billing for Fluoride Treatment of Children under Age 5 in Kansas, Fiscal Year 2011-12

Provider Type	Providers	Beneficiaries	Total Treatments
Clinic	8	79	90
Advanced Nurse Practitioner	7	60	62
Physician	68	4,344	6,055
Dental Providers (all types)	301	25,877	39,087
Total	384	30,360	45,294

Source: Division of Health Care Finance, Kansas Department of Health and Environment

Table 23: Fluoride Treatment Performed by Non-Dental Professionals, FY 2011-12

	Physician			Advanced Practice Nurse		
	Providers	Beneficiaries	Total Treatments	Providers	Beneficiaries	Total Treatments
Children < 5 years	68	4,344	6,055	7	60	62
Total	70	7,617	10,171	7	142	144

Source: Division of Health Care Finance, Kansas Department of Health and Environment

Community Water Fluoridation (CWF)

For over half a century, American communities have adjusted the natural levels of fluoride in community drinking water to a recommended level to reduce dental caries. The Centers for Disease Control and Prevention (CDC) has recognized community water fluoridation as one of the 10 great public health achievements of the 20th century. [34] Water fluoridation is effective,

safe, inexpensive, requires no behavioral change by individuals for participation, and it does not depend on access to or availability of professional services. Public water is used by most individuals, regardless of race, ethnicity, socioeconomic background, and education. Fluoridated water delivers fluoride to teeth both systemically and topically, making it one of the most effective mechanisms of fluoride delivery. [35] Studies conducted examining the effectiveness of community water fluoridation have seen reductions in the prevalence of dental caries by about 60% as compared to those living in non-fluoridated communities. [32]

Fluoridation of a community water supply is extremely cost effective. Average costs for a community to fluoridate its water supply are estimated to range from approximately $0.62 per year per person in a large community to $3.90 per year per person in a smaller community. Over a lifetime of using fluoridated water, the cost of fluoridating water is typically less expensive than the cost of one dental restoration. For most cities, on average, every $1 spent towards community water fluoridation saves $38 in dental treatment costs. Through the acceptance and utilization of this public health practice, communities nationwide may enjoy the benefits of better oral health and fewer dental caries. [36]

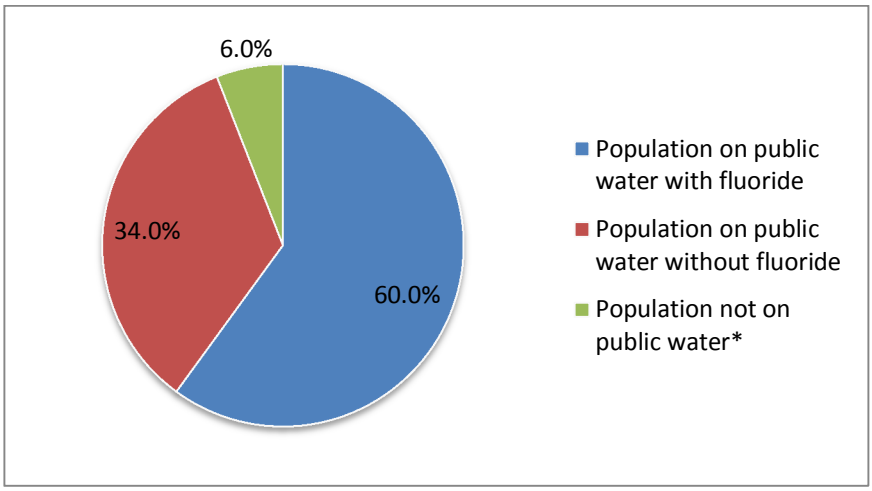
Healthy People 2020 includes a national goal for 75% of citizens on public water systems to receive optimally fluoridated water. [11] Kansas has 938 public water systems with 330 systems (35.2%) at optimal fluoridation levels (Table 24). Not all systems are adjusted; some systems have naturally fluoridated water. Fluoridated systems serve 63.8% of the state's population served by public water sources (Figure 14). This falls short of the statewide Healthy People 2020 objectives on water fluoridation (79.6%).

Table 24: Fluoridation of Kansas Community Water Systems, January 2013

	Systems	Population	% of Fluoridated Systems	% of Fluoridated Population	% of Total Systems	% of Total Population
All Water Systems	938	2,683,030	--	--	100	100
FLUORIDATED						
Adjusted	63	1,332,294	19.1	77.8	6.7	49.7
Natural	63	119,515	19.1	7.0	6.7	4.5
Variable/Other	0	0	0.0	0.0	0.0	0.0
Defluoridated	0	0	0.0	0.0	0.0	0.0
Consecutive	204	261,107	61.8	15.2	21.8	9.7
Multi-source	0	0	0.0	0.0	0.0	0.0
Total	330	1,712,916	100.0	100.0	35.3	63.8
NON-FLUORIDATED						
Non-Adjusted	390	779,056			41.6	29.0
Variable/Other	0	0			0	0
Defluoridated	0	0			0	0
Consecutive	218	191,058			19.7	7.1
Multi-source	0	0			0	0
Total	608	970,114			64.8	36.2

Source: Water Fluoridation Reporting System

Figure 14: Percent of Kansans (n= 2,853,118) who have Access to Optimally Fluoridated Water, 2013

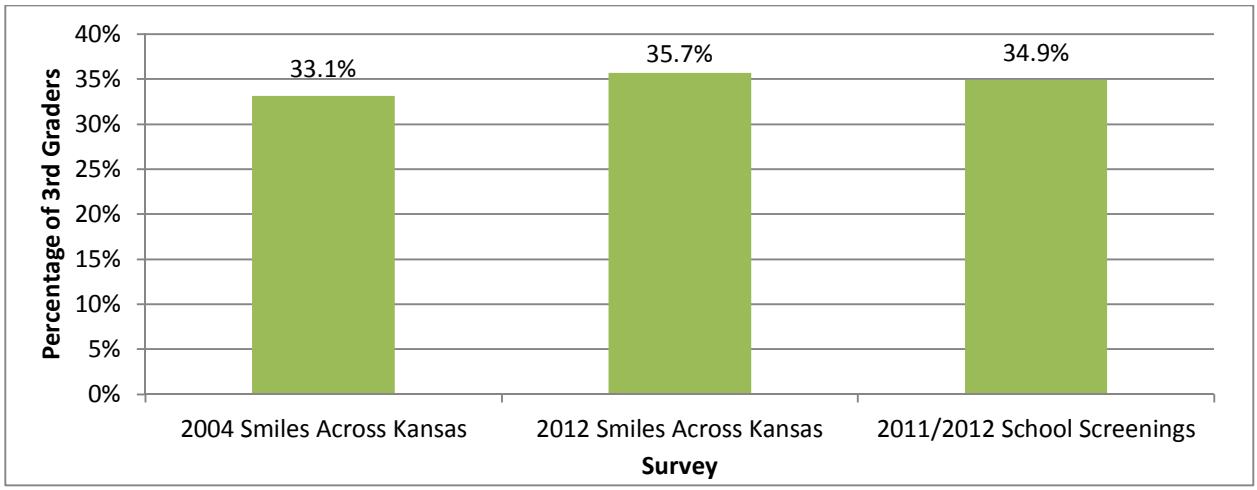


Source: Water Fluoridation Reporting System, U.S. Census
*** - Fluoridation status unknown**

Dental Sealants

Dental sealants are thin plastic coatings applied to the pits and fissures of teeth. Sealants create a barrier between the tooth and the oral environment, protecting these difficult to clean parts of teeth from dental caries. Sealants are an oral public health best practice for all children with newly erupted molars at risk of dental caries. [37] Kansas is improving in the prevalence of dental sealants on molar teeth in children. In 2004, 33.1% of Kansas 3rd graders had dental sealants on their first permanent molars. The 2012 *Smiles Across Kansas Survey* indicates that the percentage of 3rd graders with dental sealants has increased to 35.7%. [10] Sealant data is also collected by the Kansas School Screening Program, which shows similar sealant prevalence (34.9%) for the 2011/2012 school year (Figure 15). [38]

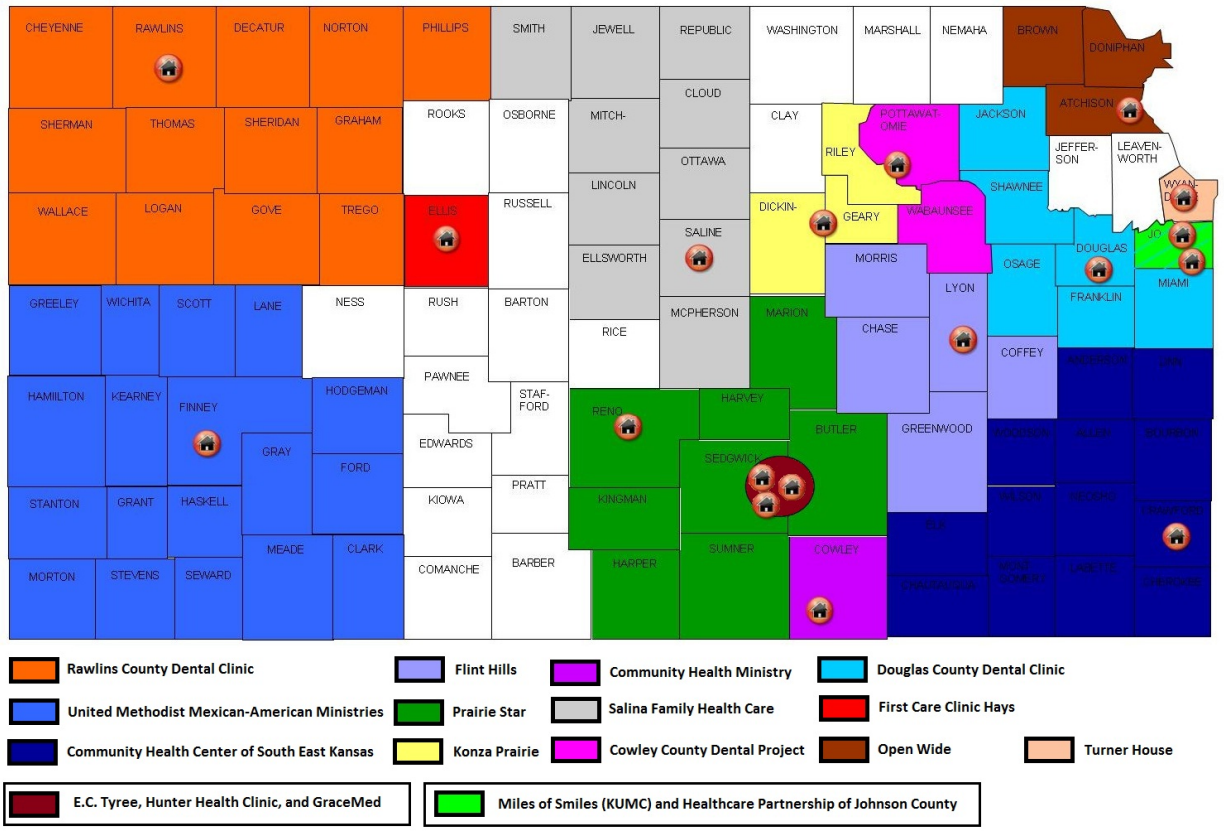
Figure 15: Percent of Kansas 3rd Graders with a Dental Sealant on a Permanent Molar, 2004, 2011-12



Source: 2004, 2012 Smiles Across Kansas, & 2011-2012 Kansas School Screening Program

One way that state oral health programs increase the prevalence of sealants in at-risk children is to create school based sealant programs. These programs use dental professionals and mobile equipment to apply sealants to children during the school day. Kansas implemented a statewide school sealant program in 2010. During the 2011-2012 school year, the Kansas School Sealant Program placed 22,156 sealants in 5,085 children in 260 schools. This denotes involvement in 19.4% of all Kansas schools and 34.3% of high-risk elementary schools. Elementary schools are considered to be "high-risk" when at least 50% of the students enrolled are eligible for the National School Lunch Program (NSLP).

Figure 16: School Sealant Program Sites in Kansas, 2012-13 School Year



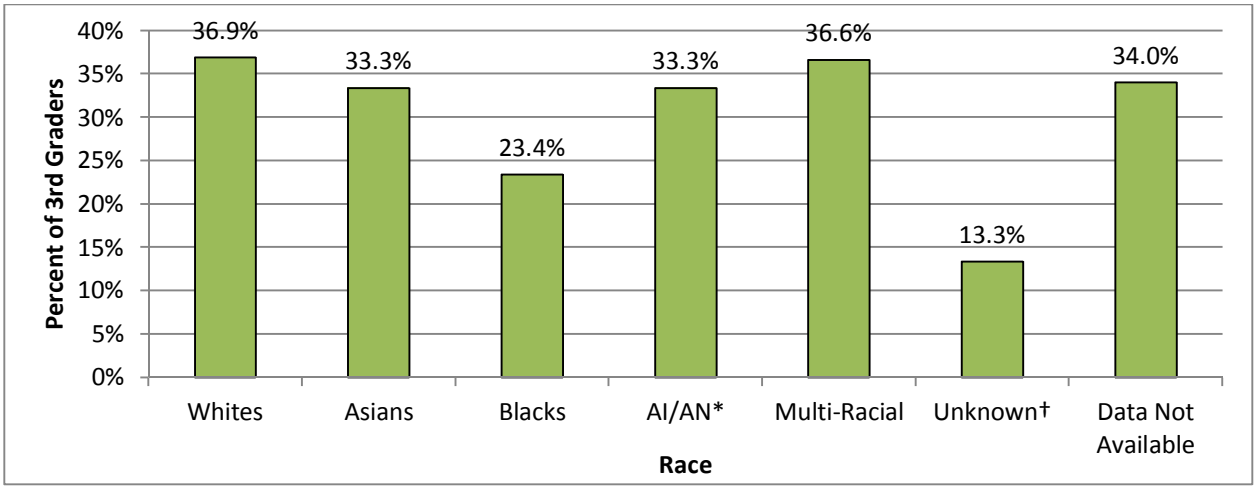
Healthy People 2020 set goals for sealants in children ages 3-5 years (1.5%), children ages 6-9 years (28.1%), and children ages 12-15 years (21.9%). [11] Kansas currently does not have any data on sealants in children under five. The percentages of Kansas 3rd graders with dental sealants found in the 2011-2012 School Screening Program data and the 2012 Smiles Across Kansas data are 34.9% and 35.7%, respectively (Table 25). [10] [38] Both are sufficient to meet the Healthy People 2020 goal for sealants among 3rd graders (28.1%). Looking at all children ages 6-9 in the Kansas School Screening Program, sealant prevalence is much lower (20.2%). The difference between the Smiles Across Kansas data and the Screening Program data can be explained by the fact that the School Screening Program data is collected by grade, not age. The 20.2% includes children in 1st, 2nd, and 3rd grades, and it likely includes children who do not have erupted first molars. As most states use their Basic Screening Survey to report on the 6-9 age group, Kansas submits this data to the National Oral Health Surveillance System. Kansas School Screening Program data indicate that the state also meets the Healthy People goal for children ages 13-15 (21.9%) with 41.7% of children in this population having dental sealants.

Table 25: Individual and School Level Dental Sealant Application

Oral Health Indicator	Statistic	Data Source
% of Children with Dental Sealants (3rd Grade and Above)	35.7%	*2012 Smiles Across Kansas* (3rd Grade)
	34.9%	2011-2012 Kansas School Screening Program (3rd Grade)
	38.8%	2011-2012 Kansas School Screening Program (3-12)

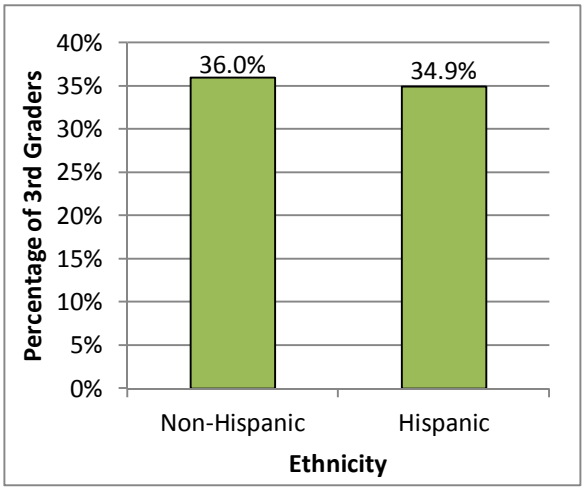
Among Kansas 3rd graders, white students had the highest percentage with dental sealants (36.9%), followed closely by multi-racial students (36.6%) (Figure 17). While almost all of the races reported similar prevalence of dental sealants ranging from 33.3% to 36.9% of 3rd graders, the prevalence among black 3rd graders (23.4%) was significantly lower than the prevalence among white 3rd grade students (36.9%) and falls short of the Healthy People 2020 objective for 6-9 year olds (28.1%). There was no significant difference in the prevalence of dental sealants on permanent molars between Hispanic and non-Hispanic 3rd graders (Figure 18).

Figure 17: Percent of Kansas 3rd Graders with a Dental Sealant on a Permanent Molar by Race, 2012



Source: 2012 Smiles Across Kansas
*** - American Indian / Alaskan Native**
† - Sample considered unreliable, numerator less than 20

Figure 18: Percent of Kansas 3rd Graders with a Dental Sealant on a Permanent Molar by Ethnicity



Source: 2012 Smiles Across Kansas

Kansas Dental Workforce

The Kansas oral health workforce provides professional preventive and restorative oral health care throughout the state. Kansas currently has 3,415 active licensed oral health care providers with a practice location within the state (Table 26). As dental assistants are not registered through the state, there is no conclusive way to determine the number of dental assistants currently practicing in Kansas.

Table 26: Licensed Dental Providers Actively Practicing in Kansas with an Address in Kansas, 2012

Endodontists	32
General Dentists	1255
Hygienists	1942
Orthodontists	75
Oral Surgeons	44
Pediatric Dentists	33
Periodontists	34
TOTAL	***3415***

Source: Kansas Dental Board

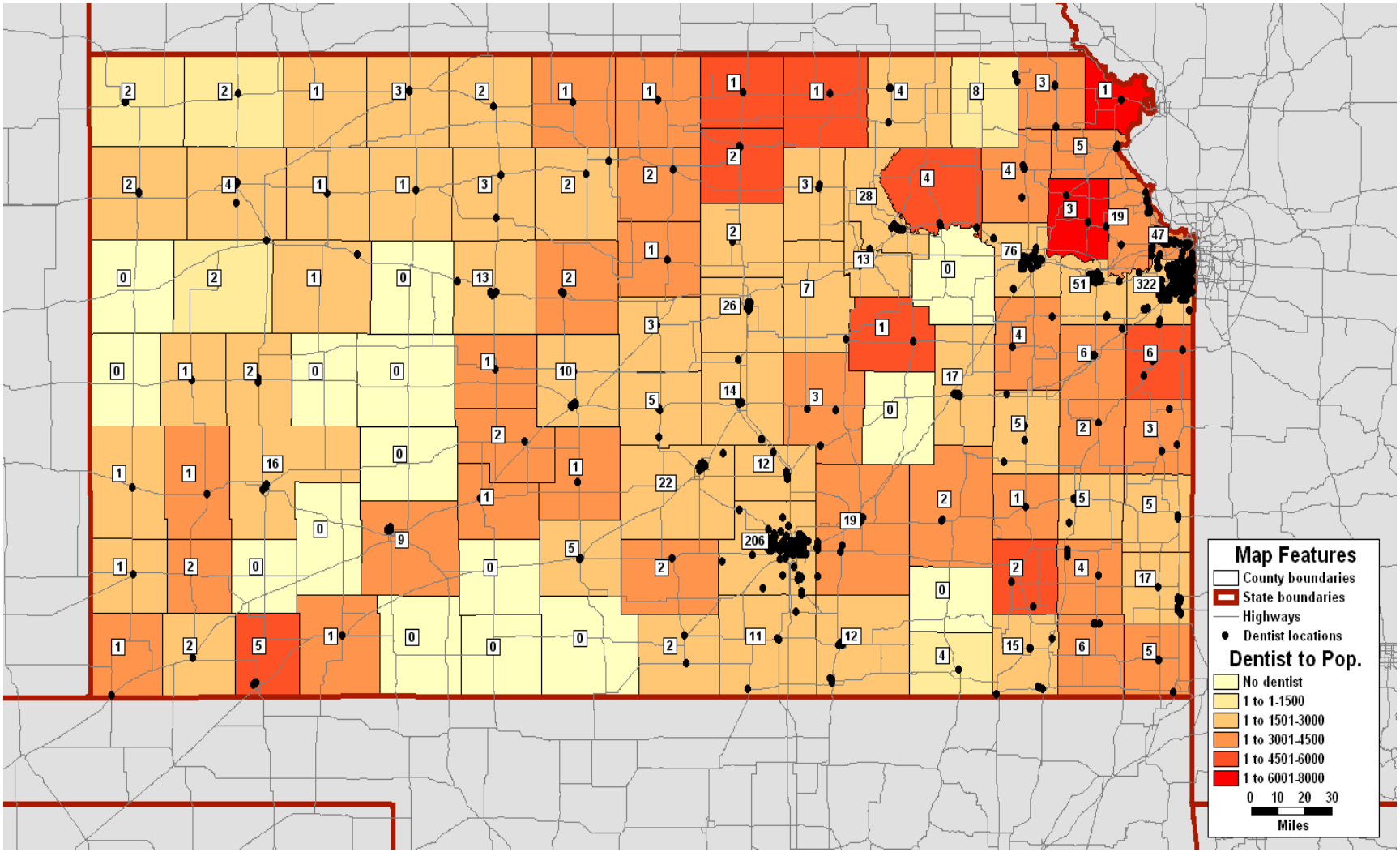
Access to oral health care can be problematic for some Kansans. [39] Dental professionals tend to practice in urban areas, and the population per primary care dentist (general practitioners and pediatric dentists) ratio increases as the county's population decreases (Table 27). [40] Of Kansas' 39 frontier counties, 12 (30.8%) do not have any primary care dentists at all (Figure 19). Dentists can be especially sparse in the western part of the state (Figure 19).

Table 27: Distribution of Primary Care Dentists by United States Department of Agriculture Rural-Urban Codes, 2011

Rural-Urban Continuum Code	Description for 2003 Codes	Number of Counties	Total Population Estimate (2009)	Number of Primary Care Dentists	Population per Dentist (2009)	Number of Zero Dentist Counties
1	County in metro area with 1 million population or more	6	839,794	403	2,083.86	0
2	County in metro area of 250,000 to 1 million population	4	612,683	248	2,470.50	0
3	County in a metro area of fewer than 250,000 population	7	354,831	139	2,552.74	1
4	Non-metro county with urban population of 20,000 or more, adjacent to a metro area	3	135,860	51	2,663.92	0
5	Non-metro county with urban population of 20,000 or more, not adjacent to a metro area	8	328,816	137	2,499.12	0
6	Non-metro county with urban population of 2,500-19,999, adjacent to a metro area	11	153,673	50	3,073.46	0
7	Non-metro county with urban population of 2,500-19,999, not adjacent to a metro area	23	243,636	84	2,900.43	0
8	Non-metro county completely rural or less than 2,500 urban population, adjacent to a metro area	4	21,434	10	2,143.40	2
9	Non-metro county completely rural or less than 2,500 urban population, not adjacent to a metro area.	39	128,020	37	3,460.00	12
Total		105	2,818,747	1,159	2,432.05	15

Source: Mapping the Rural Kansas Dental Workforce, 2011

Figure 19: Kansas Dental Practice Locations with County-Level Dentist (n=1,179) to Population Ratios, 2010



Source: 2010 Kansas Dental Board Licensure Data and 2009 U.S. Census

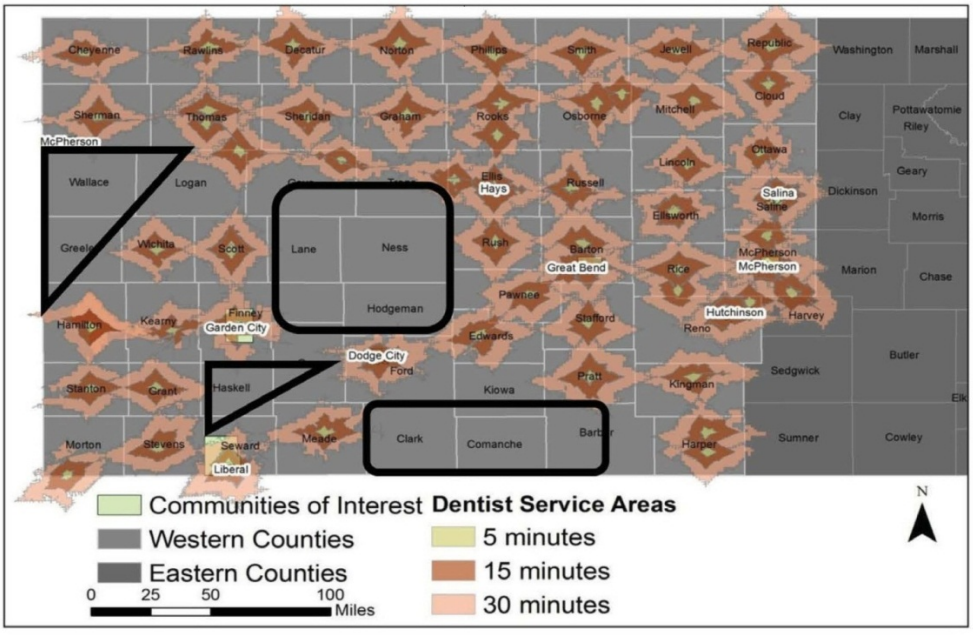
Looking specifically at rural and frontier community access to oral health care, 57,811 individuals (11% of the western Kansas population) do not live within 30 minutes of either a dentist or an Extended Care Permit (ECP) dental hygienist (Table 28). The four areas in Western Kansas where oral health care cannot be accessed within 30 minutes of traveling time are regions referred to as “Dental Care Service Deserts” (Figure 20). [39]

Table 28: Coverage Analysis with Drive Time Buffers and Population Affected, Western Kansas, 2011

30 Minute Interval		15 Minute Interval		5 Minute Interval	
	2010 Population		2010 Population		2010 Population
Not Covered (Dentist & ECP)		**Not Covered (Dentist & ECP)**		**Not Covered (Dentist & ECP)**	
79 Groups	57,811	**170 Groups**	136,078	**263 Groups**	246,665
Covered (Dentist & ECP)		**Covered (Dentist & ECP)**		**Covered (Dentist & ECP)**	
440 Groups	456,565	**349 Groups**	378,298	**256 Groups**	267,711
	2010 Population		2010 Population		2010 Population
Not Covered (Dentist)		**Not Covered (Dentist)**		**Not Covered (Dentist)**	
81 Groups	63,736	**180 Groups**	147,294	**284 Groups**	268,810
Covered (Dentist		**Covered (Dentist**		**Covered (Dentist**	
438 Groups	450,640	**339 Groups**	367,082	**235 Groups**	245,566
	2010 Population		2010 Population		2010 Population
Not Covered (ECP)		**Not Covered (ECP)**		**Not Covered (ECP)**	
270 Groups	228,015	**325 Groups**	282,668	**373 Groups**	353,851
Covered (ECP)		**Covered (ECP)**		**Covered (ECP)**	
249 Groups	286,361	**194 Groups**	231,708	**146 Groups**	160,525

Source: Kansas Bureau of Oral Health

Figure 20: Drive Time Buffers around Primary Care Dentist’s Office with Four Dental Care Service Deserts, 2011

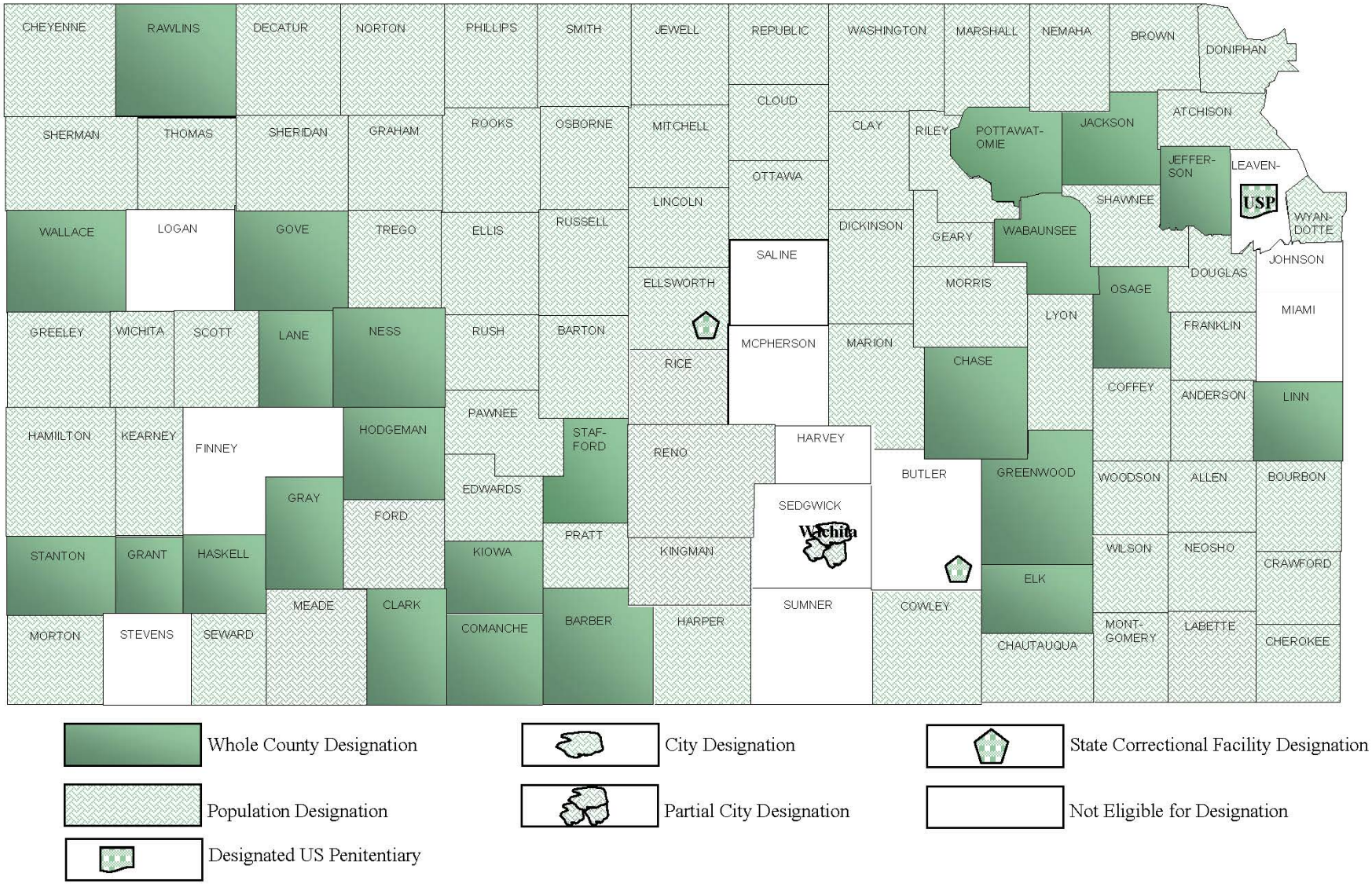


Source: Kansas Bureau of Oral Health

Dental Professional Shortage Designations

The federal designation of “Health Professional Shortage Area” (HPSA) is established by the KDHE Bureau of Community Health Systems for service areas throughout the state of Kansas. A HPSA designation determines a county’s eligibility for federal workforce programs such as National Health Services Corps and student loan re-payment. In order to be designated as a federal dental HPSA, an area must meet three criteria: 1) be a rational service area for the delivery of care, 2) have a lack of access to health care in surrounding areas because of distance, over utilization, or access barriers, and 3) have either one dentist for every 5,000 or more people or one dentist for 4,000 to 4,999 people plus population features demonstrating "unusually high need" or evidence that the dentists and dental care system is overloaded. [41] As of January 2013, Kansas had a total of 65 population dental HPSAs and 26 geographical dental HPSAs out of a total of 105 counties. The most recent data show that Kansas currently has a majority of its counties as designated federal dental HPSAs (Figure 21). [41]

Figure 21: Kansas Dental Health Professional Shortage Areas (HPSAs) as of January 2013



Source: Kansas Bureau of Community Health Systems

Dentist Age

The Kansas Oral Health Workforce Assessment [40] conducted in 2009 showed that the average age of primary care dentists in Kansas is 50 years old. The highest average age among practicing dentists was found in more rural populations while the youngest average age was found in urban and safety-net areas (Table 29). [40] Younger dentists were found working for Kansas safety net clinics, which are clinics located in underserved areas where low-income individuals can receive care based on their incomes. Most of these clinics accept Medicaid (Table 30). Most of these clinics provide dentists with student loan re-payment, and this is likely reason why they attract young dentists.

Table 29: Age Distribution of Kansas Dentists, 2009

Dentist Group	Average Age	Age ≤40 years (%)	Age 41-50 years (%)	Age 51-60 years (%)	Age 61-70 years (%)	Age > 70 years (%)
Frontier	55.7	0	4.0	58.0	38.0	0
Small Rural	53.7	15.1	18.8	39.4	22.9	3.9
Large Rural	52.3	18.9	21.4	36.9	18.7	4.0
Urban	50.6	24.8	20.7	34.7	17.6	2.3
Safety-Net	43.5	54.8	12.9	16.1	12.9	3.2
Total Sample	50.0	27.4	19.4	32.7	17.8	2.7

Source: 2009 Oral Health Workforce Assessment

Table 30: Reported Participation in Commercial and Public Insurance, Kansas, 2009

Dentist Group	Percent Who Participate in a Commercial Insurance Plan	Percent Who Participate in Medicaid
Frontier	100.0	58.0
Small Rural	90.1	50.5
Large Rural	89.7	27.5
Urban	86.7	22.2
Safety-Net	0	71.0
Total Sample	85.1	25.8

Source: Kansas 2009 Oral Health Workforce Assessment

Dental Medicaid Providers

Kansas Medicaid provides a full dental benefit for children and limited coverage for adults. Dentists are not required to see Medicaid patients, and in several parts of the state, there are few dentists enrolled as Medicaid providers. In January 2013, the state instituted a Medicaid Managed Care system entitled KanCare. The provider data in this document is from FY 2010-2011, prior to the start of KanCare. At that time fourteen Kansas counties did not have a Medicaid enrolled dentist, leaving 39,787 Kansans without access to a Medicaid dentist in their county. In the Kansas 2009 Oral Health Workforce Assessment, it was reported that the smallest proportion of dentists who participated in Medicaid were found in urban areas (22.2%) (Table 30). [40] It is important to note that slightly more than 25% of Kansas dental providers accept Medicaid as a form of payment for dental care.

In FY 2010-2011, the state had 407 dentists enrolled in Medicaid, and 340 dentists enrolled in the CHIP program (HealthWave). The dental benefits and reimbursement rates for each programs were identical, but not all Medicaid providers were signed up as CHIP providers and vice versa, and it is likely that these numbers are duplicative, meaning that they represent the same providers. In order to ascertain the number of providers that are seeing a significant number of Medicaid patients in their practices, data was collected on the number of dentists who had been reimbursed for actual dental care (claims) in the last full fiscal year (Table 31).

Table 31: Medicaid/State Child Health Insurance Program Participation among Actively Practicing Kansas Dentists (n=1,443), 2011

	Medicaid Only	SCHIP Only
Number of dentists enrolled as Medicaid billing providers with at least one paid claim	407	340
Number of Medicaid billing providers with paid claims ≥ $10,000	214	135
Number of Medicaid billing dentists who saw 50 or more beneficiaries under age 21	213	139
Number of Medicaid billing dentists who saw 100 or more beneficiaries under age 21	157	89

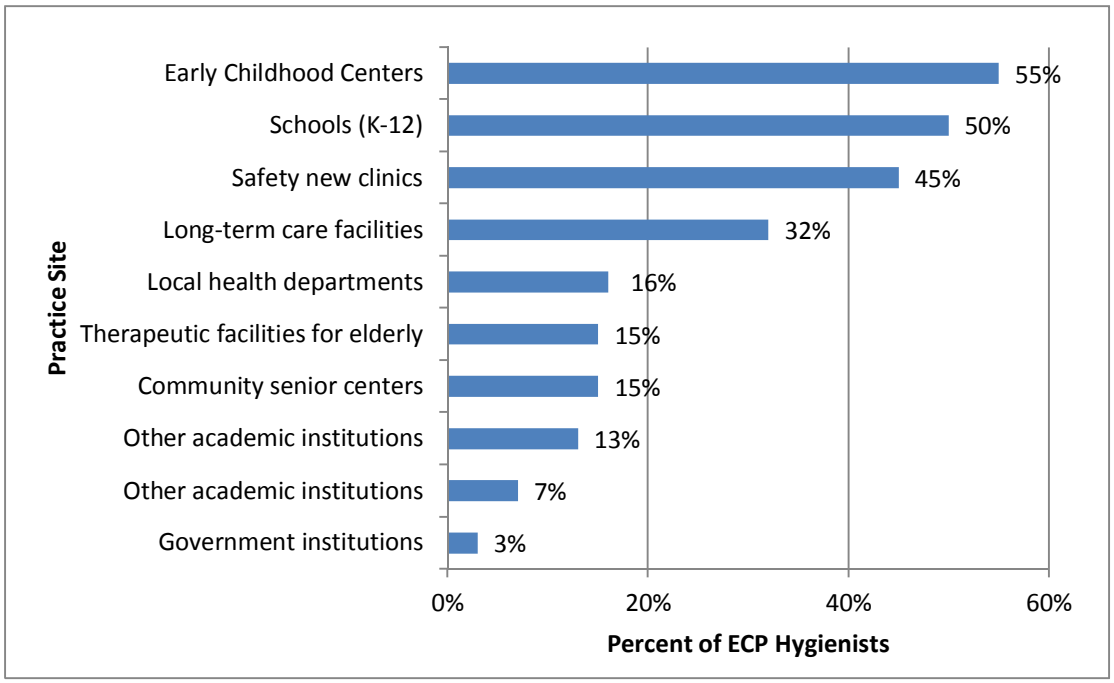
Source: Division of Healthcare Finance, Kansas Department of Health and Environment, 2011

Non-Dentist Providers

Extended Care Permit (ECP) Dental Hygienists

An Extended Care Permit (ECP) allows a dental hygienist who is sponsored by a dentist to assist in expanding access to preventive oral health services for underserved populations. ECPs are permitted to practice relatively independently in community settings such as public schools, Head Start programs, local health departments, safety-net clinics, adult care homes, and long-term care facilities. Most ECPs work in conjunction with safety net clinics in programs benefitting children.

Figure 22: Percent of Respondent Extended Care Permit Dental Hygienists (n=59) Reporting Practice Sites



Source: Kansas Oral Health Workforce Assessment, 2009

Since the creation of the ECP position in 2003, the program has expanded. In 2009, 89 of over 1,593 Kansas registered dental hygienists had Extended Care Permits. In 2011, the number of hygienists with Extended Care Permits increased to 124. [39] As of December 2012, there were 143 total ECPs with active Kansas practice locations. According to a 2009 study, 74% of ECP dental hygienists were older than 40 years of age.

Dental Scaling Assistants

The Kansas Dental Practices Act (Kansas House Bill 2724) was amended in 1998 to allow specially trained dental assistants to polish and scale the visible part of the tooth. These dental scaling assistants, referred to as scaling assistants, are subject to minimal on-going oversight by the Kansas Dental Board. State law requires dental assistants to complete a course of study approved by the Kansas Dental Board and to work under the direct supervision of a licensed dentist. A certificate of course completion must be submitted to the dental board, but after this no additional follow is done by the Board. As of April 2007, the Kansas Dental Board has received 400 certificates of course completion since the program started in 1999. [42]

Appendix I: Healthy People 2020 Oral Health Topic Objectives

Oral Health of Children and Adolescents

- **OH–1:** Reduce the proportion of children and adolescents who have dental caries experience in their primary or permanent teeth.
  - OH–1.1 Reduce the proportion of children ages 3 to 5 years with dental caries experience in their primary teeth.
    - Target: 30.0 percent.
    - U.S. Baseline: 33.3 percent of children ages 3 to 5 years had dental caries experience in at least one primary tooth in 1999–2004.
  - OH–1.2 Reduce the proportion of children ages 6 to 9 years with dental caries experience in their primary and permanent teeth.
    - Target: 49.0 percent.
    - U.S. Baseline: 54.4 percent of children ages 6 to 9 years had dental caries experience in at least one primary or permanent tooth in 1999–2004.
  - OH–1.3 Reduce the proportion of adolescents ages 13 to 15 years with dental caries experience in their permanent teeth.
    - Target: 48.3 percent.
    - U.S. Baseline: 53.7 percent of adolescents ages 13 to 15 years had dental caries experience in at least one permanent tooth in 1999–2004.
- **OH–2:** Reduce the proportion of children and adolescents with untreated dental decay.
  - OH–2.1 Reduce the proportion of children ages 3 to 5 years with untreated dental decay in their primary teeth.
    - Target: 21.4 percent.
    - U.S. Baseline: 23.8 percent of children ages 3 to 5 years had untreated dental decay in at least one primary tooth in 1999–2004.
  - OH–2.2 Reduce the proportion of children ages 6 to 9 years with untreated dental decay in their primary and permanent teeth.
    - Target: 25.9 percent.
    - U.S. Baseline: 28.8 percent of children ages 6 to 9 years had untreated dental decay in at least one primary or permanent tooth in 1999–2004.
  - OH–2.3 Reduce the proportion of adolescents ages 13 to 15 years with untreated dental decay in their permanent teeth.
    - Target: 15.3 percent.
    - U.S. Baseline: 17.0 percent of adolescents ages 13 to 15 years had untreated dental decay in at least one permanent tooth in 1999–2004.
- **OH–3:** Reduce the proportion of adults with untreated dental decay.
  - OH–3.1 Reduce the proportion of adults ages 35 to 44 years with untreated dental decay.
    - Target: 25.0 percent.
    - U.S. Baseline: 27.8 percent adults ages 35 to 44 years had untreated dental decay in at least one permanent tooth in 1999–2004.
  - OH–3.2 Reduce the proportion of adults ages 65 to 74 years with untreated coronal caries.
    - Target: 15.4 percent.
    - U.S. Baseline: 17.1 percent of adults ages 65 to 74 years had untreated coronal caries in at least one permanent tooth in 1999–2004.
  - OH–3.3 Reduce the proportion of adults ages 75 years and older with untreated root surface caries.

        - Target: 34.1 percent.
        - U.S. Baseline: 37.9 percent of adults ages 75 years and older had untreated root surface caries in at least one permanent tooth in 1999–2004.
- **OH–4:** Reduce the proportion of adults who have ever had a permanent tooth extracted because of dental caries or periodontal disease.
    - OH–4.1 Reduce the proportion of adults ages 45 to 64 years who have ever had a permanent tooth extracted because of dental caries or periodontal disease.
        - Target: 68.8 percent.
        - U.S. Baseline: 76.4 percent of adults ages 45 to 64 years had ever had a permanent tooth extracted because of dental caries or periodontitis disease.
    - OH–4.2 Reduce the proportion of adults ages 65 to 74 years who have lost all of their natural teeth.
        - Target: 21.6 percent.
        - U.S. Baseline: 24.0 percent of adults ages 65 to 74 years had lost all of their natural teeth in 1999–2004.
- **OH–5:** Reduce the proportion of adults ages 45 to 74 years with moderate or severe periodontitis.
        - Target: 11.4 percent.
        - U.S. Baseline: 12.7 percent of adults ages 45 to 74 years had moderate or severe periodontitis in 2001–04.
- **OH–6:** Increase the proportion of oral and pharyngeal cancers detected at the earliest stage.
        - Target: 35.8 percent.
        - U.S. Baseline: 32.5 percent of oral and pharyngeal cancers were diagnosed at the localized stage (stage 1) in 2007.

Access to Preventive Services

- **OH–7:** Increase the proportion of children, adolescents, and adults who used the oral health care system in the past year.
        - Target: 49.0 percent.
        - U.S. Baseline: 44.5 percent of persons ages 2 years and older had a dental visit in the past year in 2007.
- **OH–8:** Increase the proportion of low-income children and adolescents who received any preventive dental service during the past year.
        - Target: 29.4 percent.
        - U.S. Baseline: 26.7 percent of children and adolescents ages 2 to 18 years at or below 200 percent of the Federal poverty level received a preventive dental service during the past year in 2007.
- **OH–9:** Increase the proportion of school-based health centers with an oral health component.
    - OH–9.1 Increase the proportion of school-based health centers with an oral health component that includes dental sealants.
        - Target: 26.5 percent.
        - U.S. Baseline: 24.1 percent of school-based health centers with an oral health component included dental sealants in 2007–08.
    - OH–9.2 Increase the proportion of school-based health centers with an oral health component that includes dental care.
        - Target: 11.1 percent.

        - U.S. Baseline: 10.1 percent of school-based health centers with an oral health component included fillings and extractions in 2007–08.
    - OH–9.3 Increase the proportion of school-based health centers with an oral health component that includes topical fluoride.
        - Target: 32.1 percent.
        - U.S. Baseline: 29.2 percent of school-based health centers with an oral health component included fluoride rinses, varnish, or supplements in 2007–08.
- **OH–10:** Increase the proportion of local health departments and Federally Qualified Health Centers (FQHCs) that have an oral health program.
    - OH–10.1 Increase the proportion of Federally Qualified Health Centers (FQHCs) that have an oral health care program.
        - Target: 83 percent.
        - U.S. Baseline: 75 percent of FQHCs had an oral health care component in 2007.
    - OH–10.2 Increase the proportion of local health departments that have oral health prevention or care programs.
        - Target: 28.4 percent.
        - U.S. Baseline: 25.8 percent of local health departments had an oral health prevention or care program in 2008.
- **OH–11:** Increase the proportion of patients who receive oral health services at Federally Qualified Health Centers (FQHCs) each year.
        - Target: 33.3 percent.
        - U.S. Baseline: 17.5 percent of patients at FQHCs received oral health services in 2007.

Oral Health Interventions

- **OH–12:** Increase the proportion of children and adolescents who have received dental sealants on their molar teeth.
    - OH–12.1 Increase the proportion of children ages 3 to 5 years who have received dental sealants on one or more of their primary molar teeth.
        - Target: 1.5 percent.
        - U.S. Baseline: 1.4 percent of children ages 3 to 5 years received dental sealants on one or more of their primary molars in 1999–2004.
    - OH–12.2 Increase the proportion of children ages 6 to 9 years who have received dental sealants on one or more of their permanent first molar teeth.
        - Target: 28.1 percent.
        - U.S. Baseline: 25.5 percent children ages 6 to 9 years received dental sealants on one or more of their first permanent molars in 1999–2004.
    - OH–12.3 Increase the proportion of adolescents ages 13 to 15 years who have received dental sealants on one or more of their permanent molar teeth.
        - Target: 21.9 percent.
        - U.S. Baseline: 19.9 percent of adolescents ages 13 to 15 years received dental sealants on one or more of their first permanent molars and one or more second permanent molars in 1999–2004.
- **OH–13:** Increase the proportion of the U.S. population served by community water systems with optimally fluoridated water.
        - Target: 79.6 percent.
        - U.S. Baseline: 72.4 percent of the U.S. population served by community water systems received optimally fluoridated water in 2008.

- **OH–14:** (Developmental) Increase the proportion of adults who receive preventive interventions in dental offices.
    - OH–14.1 (Developmental) Increase the proportion of adults who received information from a dentist or dental hygienist focusing on reducing tobacco use or on smoking cessation in the past year.
    - OH–14.2 (Developmental) Increase the proportion of adults who received an oral and pharyngeal cancer screening from a dentist or dental hygienist in the past year.
    - OH–14.3 (Developmental) Increase the proportion of adults who were tested or referred for glycemic control from a dentist or dental hygienist in the past year.

Monitoring and Surveillance Systems

- **OH–15:** (Developmental) Increase the number of States and the District of Columbia that have a system for recording and referring infants and children with cleft lips and cleft palates to craniofacial anomaly rehabilitative teams.
    - OH–15.1 (Developmental) Increase the number of States and the District of Columbia that have a system for recording cleft lips and cleft palates.
    - OH–15.2 (Developmental) Increase the number of States and the District of Columbia that have a system for referral for cleft lips and cleft palates to rehabilitative teams.
- **OH–16:** Increase the number of States and the District of Columbia that have an oral and craniofacial health surveillance system.
        - Target: 51 (50 States and the District of Columbia).
        - U.S. Baseline: 32 States had an oral and craniofacial health surveillance system in 2009.

Public Health Infrastructure

- **OH–17:** Increase health agencies that have a dental public health program directed by a dental professional with public health training.
    - OH–17.1 Increase the proportion of States (including the District of Columbia) and local health agencies that serve jurisdictions of 250,000 or more persons with a dental public health program directed by a dental professional with public health training.
        - Target: 25.7 percent.
        - U.S. Baseline: 23.4 percent of States (including the District of Columbia) and local health agencies that served jurisdictions of 250,000 or more persons had a dental public health program directed by a dental professional with public health training in 2009.
    - OH–17.2 Increase the number of Indian Health Service Areas and Tribal health programs that serve jurisdictions of 30,000 or more persons with a dental public health program directed by a dental professional with public health training.
        - Target: 12 programs.
        - U.S. Baseline: 11 Indian Health Service Areas and Tribal health programs that served jurisdictions of 30,000 or more persons had a dental public health program directed by a dental professional with public health training in 2010.

Appendix II: Healthy People 2020 Objective Sources

Table 32: Healthy People 2020 Oral Health Indicators with U.S. and Kansas Baselines

	Healthy People 2020 Objective	Kansas Baseline Source
OH-1	Reduce the proportion of children who have dental caries experience • Children, ages 6-9	 Smiles Across Kansas, 2012
OH-2	Reduce the proportion of children who have untreated caries • Children, ages 6-9 • Adolescents, ages 13-15	 Smiles Across Kansas, 2012 Kansas School Screening Program, 2011/2012
OH-4	• Reduce the proportion of adults ages 45-64 that have ever had a permanent tooth extracted because of caries or periodontal disease • Reduce the proportion of adults ages 65-74 who have lost all of their natural teeth	45-54: BRFSS, 2010 55-64: BRFSS 2010 BRFSS 2010
OH-6	• Increase the proportion of oral and pharyngeal cancers diagnosed at the localized stage	Kansas Cancer Registry, 2009
OH-7	• Increase the proportion of children, adolescents, and adults who use the oral health care system each year	Children: Smiles Across Kansas, 2012 Adults: BRFSS 2010
OH-8	• Increase the proportion of low-income children and adolescents ages 2-18 years at or below 200% of federal poverty level who received a preventive dental service in the past year	Division of Health Care Finance, FY 2011
OH-9	• Increase the proportion of school-based health centers with oral health component School-based health centers with oral health component that includes: o Dental Sealants	 Kansas School Sealant Program, 2012
OH-10	• Increase the proportion of Federally Qualified Health Centers (FQHCs) that have an oral health care program • Increase the proportion of local health departments that have an oral health prevention or care program	Kansas Association for the Medically Underserved Kansas Association for Local Health Departments
OH-11	• Increase the proportion of FQHC patients who receive oral health services at FQHCs	Kansas Association for the Medically Underserved
OH-12	Increase the proportion of children who have received dental sealants on one or more molar teeth o Children ages 6-9 years – Permanent first molar teeth o Adolescents ages 13-15 years – Permanent second molar teeth	 Kansas School Screening Program, 2011/2012 Kansas School Screening Program, 2011/2012
OH-13	• Increase the proportion of U.S./State Population served by community water systems that received optimally fluoridated water	Water Fluoridation Reporting System, 2012
OH-16	• Increase the number of states with and oral and craniofacial health surveillance system	Kansas School Screening Program Elder Smiles, 2012

Appendix III: Healthy Kansans 2020

Working together, working smarter to routinely connect state and local partners across disciplines and sectors to enhance implementation of innovative systems and strategies, and improve individual and community well-being in Kansas by 2020.

Cross-cutting Themes and Priority Strategies

Healthy Living	Healthy Communities	Access to Services
• **Promote physical activity** (encourage and market the benefits of physical activity, expand access to public places for physical activity, expand opportunities for physical activity in schools and child care settings)	• **Promote access to healthy foods, and support policies that promote healthy food choices** (label healthy vending and menu options, encourage farmers' markets and expand access to reach seniors and low income Kansans)	• **Improve access to services that address the root causes to poor health** (food insecurity, homelessness, low education, income and health literacy)
• **Promote healthy eating** (provide nutrition education to address low health literacy, encourage healthy eating through marketing materials, promote availability of healthy local foods)	• **Support policies that make the default choice the healthy choice** (policies that influence/support the adoption of healthy lifestyle behaviors, reduce prevalence of chronic disease, injury and rates of infectious disease, and support the quality and availability of child care)	• **Effectively and efficiently use population health management through health information technology (HIT)** (optimize use of electronic health records (EHR's) and health information exchange (HIE))
• **Develop incentives for Kansans to participate in health and wellness programs** (smoking cessation, weight loss, nutrition classes, chronic disease self-management)	• **Promote environments and community design that impact health and support healthy behaviors** (ensure access to clean air and water, promote adoption of complete streets designs, promote walking trails, bike trails and ensure safe housing free of lead, mold and radon)	• **Promote integrated health care delivery, including integrated behavioral health, social services and medical care** (patient-centered medical home, trainings for health professionals)
• **Promote tobacco use prevention and control** (cessation, policy and education)		
• **Improve supports for the social and emotional development of children and families** (healthy home visitors, mental health, bullying, parents as teachers, breastfeeding education and prenatal care)		
Kansans equipped to take an active role in improving their health and supporting their families and friends in making healthy choices.	**Kansans working together to impact the natural as well as human-formed conditions that influence health and/or risk for injury.**	**Kansans ready access to information and health and social services to achieve the best health outcomes.**

Appendix IV: Kansas State Oral Health Plan 2011-2014

- Section One - Educate Kansas That Good Oral Health Is Essential to Overall Wellness
    - Objective One - Create Meaningful Messages for Target Audiences about Oral Health
        - Strategies:
            1. Create and Distribute Information About Caries, Oral Disease Prevention and the Importance of Early Dental Professional Visits to Increase Awareness about Dental Disease in Children under Five.
            2. Increase Oral Health Literacy among All of Kansas' Diverse Populations.
            3. Promote a Culturally Competent Oral Health Workforce.
    - Objective Two - Integrate Oral Health into All Disease Prevention Programs
        - Strategies:
            1. Utilize Oral Health Personnel and Resources to Promote the Reduction of Tobacco Use.
            2. Improve the Oral Health of Kansas' Elders.
            3. Improve Oral Health for Kansans with Disabilities.
            4. Integrate Oral Health Into KDHE Kansas Diabetes Prevention and Control Program, and Heart Disease and Stroke Prevention Programs.
    - Objective Three - Educate All Health Care and Social Service Providers about Oral Health
        - Strategies:
            1. Educate Pediatric Medical Providers about Identifying Oral Disease and Disease Prevention.
            2. Increase the Capacity of Dental Providers and Community Organizations to Address the Oral Health Needs of Pregnant Women and Children (Ages 0-5).
            3. Ensure that Oral Health is a Part of Health Programs in Kansas Schools.

- Section Two - Advocate for Better Oral Health for All Populations
    - Objective One - Reduce Barriers to Oral Health Access by Including Oral Health Treatment and Prevention in All Publically Funded Health Programs
        - Strategies:
            1. Provide a Full Dental Benefit for All Enrollees of the Kansas Medicaid Program.
            2. Improve the Sustainability of Oral Health Programs with Adequate Reimbursement for the Provision of Oral Health Services.
            3. Support Implementation of the Oral Health Provisions of the Affordable Care Act.
            4. Maintain state and federal funding for Kansas Dental Safety Net Clinics including Community Health Centers and Local Health Departments.
            5. Maintain a State Bureau of Oral Health within the KDHE Kansas Division of Health.

- Objective Two: Increase the Number of Kansans with a Fluoridated Community Water Supply
- Objective Three: Sustain the State Oral Health Advocacy Organization, Oral Health Kansas, Inc.
- Objective Four: Maintain an Oral Health Surveillance System to Monitor Progress and Educate Policy Makers about the Oral Health Status of Kansans

- Section Three: Ensure that the Kansas Dental Professional Workforce Can Meet the Oral Needs of All Kansans
  - Objective One - Utilize Dentists and Dental Hygienists to Reduce the Burden of Oral Disease in Kansas by Increasing the Number of Dentists and Hygienists Treating Underserved Populations
    - Strategies:
      1. Coordinate all Dental Workforce Resources.
      2. Provide Financial Incentives and Professional Support for Dental Professionals Working in Underserved Areas.
      3. Identity Young Kansans In Underserved Communities/Populations Interested in Dental Careers.
      4. Promote the Advanced Education in General Dentistry Program at Wichita State University.
      5. Maximize the Use of Dental Hygienists that have an Extended Care Permit (ECP).
      6. Encourage Dental Professionals to Treat Patients with Special Health Care Needs.
  - Objective Two - Explore the Potential of New Dental Practitioners to Improve Access in Kansas
    - Strategies:
      1. Educate dental professionals, policy makers and advocates about all new provider models.
      2. Participate in the legislative process if/when legislation is introduced.

Appendix V: Data Sources

Smiles Across Kansas 2012

Survey Population: Kansas 3rd graders

Number surveyed: 2090 individuals

Processing Method: Age

Survey Type: Cross-sectional Assessment

Participation Requirements: School must actively consent to hosting survey. Parents must actively consent to child participation

Indicators Observed:

- Presence of untreated caries
- Presence of treated caries
- Treatment urgency
    - No obvious problems
    - Early dental care
    - Urgent dental care
- Presence of dental sealants on permanent molars

Additional Information Collected: Information was collected through parent/guardian questionnaire on age, gender, race/ethnicity, access to and utilization of dental care, and socioeconomic status.

Benefits to This Survey: The Smiles Across Kansas survey utilized a version of the Basic Screening Survey that is focused on a 3rd grade population, The BSS is a standardized survey developed by the Association of State and Territorial Dental Directors (ASTDD) and the Centers for Disease Control and Prevention (CDC). There is a standardized protocol associated with this assessment to collect information on the observed oral health of children. The existence of a standardized survey allows for direct comparison between entities also collecting this information, which includes other states. Additionally, this same survey was conducted in 2004, which allows Kansas to see the improvement made in the oral health care status of 3rd graders over time.

Limitations to This Survey: While the survey does provide a great wealth of information regarding the oral health status of young children, consent to participate proved to be problematic. Not only do the parents of the children need to consent to their child's participation, but the school must also agree to host the survey team. Reasons for non-participation on behalf of the both the students and the schools cannot be conclusively determined from the analysis, but it is theorized that parents with children who have poor oral health would opt to not have their child participate. Additionally, the children might forget to bring the consent form home. Schools may not want to participate because they feel that the children have poor oral health and don't want poor results to reflect badly on the school.

2011-2012 Kansas School Screening Program

Survey Population: Kansas children in grades K-12

Number Surveyed: 140,556 individuals

Processing Method: Grade in school

Survey Type: Cross-sectional Assessment

Participation Requirements: Parents passively consent to child participation, but may decline participation.

Indicators Observed:

- Presence of untreated caries
- Presence of treated caries
- Treatment urgency
    - No obvious problems
    - Needs routine preventive care or sealants
    - Needs restorative care
    - Needs urgent care (pain or infection)
- Presence of dental sealants on primary molars

Additional Information Collected: None

Benefits to This Survey: Due to the fact that this survey has passive consent, this sample is probably more representative of the Kansas population. Additionally, children grades K-12 were surveyed, which allowed the direct comparison between children of each grade level. This helps determine the changes that we may find that progress as children age. For example, the Smiles Across Kansas survey collected sealant prevalence among 3rd grade children. In some instances, the permanent molars have not erupted yet, which would increase the percentage of children who do not have dental sealants. The School Screening Program allows us to see if the prevalence increases over time.

Limitations to this Survey: While this survey does collect information across a much wider population than does the Smiles Across Kansas survey, data are collected in aggregate form in terms of the school sampled. It is because of this that the School Screening Program cannot determine caries experience among children. This survey is also problematic because it cannot respond to the Healthy People 2020 objectives, which are designated by age. While the oral health indicators may be assessed among the study population, there is no direct translation into the indicators.

Elder Smiles 2012

Survey Population: Kansas seniors ages 65 years or more who live in nursing facilities

Number Surveyed: 540 individuals

Processing Method: Age

Survey Type: Cross-sectional Assessment

Participation Requirements: Facility must actively consent to hosting survey. Individuals/Guardians must actively consent to participation.

Indicators Observed:

- Edentulism
  - Fully Edentulous
  - Partially Edentulous
  - Full Dentition
- Presence of removable lower denture/partial
- Presence of removable upper denture/partial
- Presence of substantial oral debris
- Presence of suspicious soft tissue lesion
- Presence of untreated decay
- Presence of root fragments
- Presence of gingival inflammation
- Presence of tooth mobility
- Treatment Urgency
  - No obvious problem
  - Early care – within the next several weeks
  - Urgent care (pain or infection) – within the next week

Additional Information Collected: Information was collected through individual/guardian questionnaire on demographics, daily oral care, access to and utilization of dental treatment, and insurance status.

Benefits to This Survey: The Elder Smiles 2012 survey utilized a version of the BSS that is focused on elderly populations The BSS is a standardized survey developed by the Association of State and Territorial Dental Directors (ASTDD) and the Centers for Disease Control and Prevention (CDC). There is a standardized protocol associated with this assessment to collect information on the observed oral health of children. The existence of a standardized survey allows for direct comparison between entities also collecting this information, which includes other states.

Limitations to this Survey: It is important to note some flaws in the survey implementation that could have affected the results. Nursing facility participation was optional and facilities with poor oral health policies could have opted out of the survey with no adverse effects. Those who agreed to participate were told that a minimum of 30 residents was required, so some took this to mean that only 30 residents were to be screened. In many cases, the screeners were provided with a list of residents that they had permission to screen. The screeners felt that these residents were usually the most cooperative and cognitively-alert patients in the facility. Residents who required guardian signature were rarely included. Because of these factors, it is probable that the data are skewed toward healthier residents. The screeners also felt that a significant number of residents that participated in the clinical survey may have lacked the cognitive ability to answer the questionnaire in a consistent and knowledgeable way.

Kansas Head Start and Early Head Start

Survey Population: Kansas Head Start: Kansas children ages 3-5
Kansas Early Head Start: Pregnant women, infants, and toddlers

Number Surveyed: Kansas Head Start: 6,997 children
Kansas Early Head Start: 2,335 children

Participation Requirements: Individual must be enrolled in the Head Start program and follow through with all required screenings. In order to qualify for this benefit program, you must be a resident of the state of Kansas, you must be a parent or primary caregiver responsible for a child who is too young for public school. In order to qualify, you must also have an annual household income (before taxes) that is below the following amounts:

Household Size	Maximum Income Level (Per Year)
1	$14,521
2	$19,669
3	$24,817
4	$29,965
5	$35,113
6	$40,261
7	$45,409
8	$50,557

Indicators Observed:

- Dental Home
- Preschool Preventive Care
- Preschool Completed Dental Exam
- Preschool Needed Treatment
- Preschool Received Treatment
- 0-2 Up-to-Date on Dental EPSDT Schedule
- Pregnant Women Completed Dental Exam

Additional Information Collected: Information was collected through individual/guardian questionnaire on demographics, daily oral care, access to and utilization of dental treatment, and insurance status.

Benefits to This Survey: The Head Start Program Information Report (PIR) – Program-level Dental Services Report provides information as to the oral health statuses of a previously undocumented population. The Head Start program provides oral health care to infants and toddlers who could not otherwise afford the necessary care. This survey collects information to ensure that these infants have access to oral health care and are following through with the recommended practices. This report is the only assessment of the oral health needs of children not yet in the school system.

Limitations to this Survey: Data collected by Head Start regarding the oral health care received by children are self-reported by both parents and the programs. The issue being that

there are consequences for poor performance. There is some suspicion as to the veracity of these data being reported, giving weight to the idea that the data are overly positive. In the future, the Kansas school screening program will be expanded to include Head Start children, which will provide more accurate data.

Works Cited

[1] Centers for Disease Control and Prevention, "Chronic Disease Prevention and Health Promotion," 29 July 2011. [Online]. Available: http://www.cdc.gov/chronicdisease/resources/publications/aag/doh.htm. [Accessed 2013].

[2] National Institutes of Medicine, "Oral Health in America: A Report of the Surgeon General," 2000.

[3] I. S. Gomes-Filho, J. S. Passos and S. S. da Cruz, "Respiratory Disease and the Role of Oral Bacteria," *J Oral Microbiol,* vol. 2, 2010.

[4] B. L. Mealey, "Periodontal Disease and Diabetes: A Two-Way Street," *Journal of the American Dental Association,* vol. 137, no. 2, pp. 265-315, 2006.

[5] R. H. Selwitz, A. I. Ismail and N. B. Pitts, "Dental Caries," *Lancet,* vol. 369, no. 9555, pp. 51-59, 6 January 2007.

[6] Centers for Disease Control and Prevention, "Children's Oral Health," U.S. Department of Health and Human Services, 30 August 2012. [Online]. Available: http://www.cdc.gov/oralhealth/topics/child.htm. [Accessed 2012].

[7] S. L. Jackson, W. F. Vann Jr., J. B. Kotch, B. T. Pahel and J. Y. Lee, "Impact of Poor Oral Health on Children's School Attendance and Performance," *American Journal of Public Health,* vol. 101, no. 10, pp. 1900-1906, October 2011.

[8] H. C. Gift, S. T. Reisine and D. C. Larach, "The Social Impact of Dental Problems and Visits," *American Journal of Public Health,* vol. 82, no. 12, pp. 1663-1668, 1992.

[9] B. A. Dye, X. Li and G. Thornton-Evans, "Oral Health Disparities as Determined by Selected Healthy People 2020 Oral Health Objectives for the United States," *NCHS Data Brief,* August 2012.

[10] Bureau of Oral Health, "2012 Smiles Across Kansas: A Survey of the Oral Health of Kansas Children," 2012.

[11] Healthy People, "Healthy People 2020: Topics and Objectives - Oral Health," 2010. [Online]. Available: http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=32 . [Accessed 2012].

[12] Kansas Head Start Association, "Kansas Cavity Free Kids," [Online]. Available: http://www.ksheadstart.org/node/108.

[13] W. E. Mouradian, E. Wehr and J. J. Crall, "Disparities in Children's Oral Health and Access to Dental Care," *Journal of the American Medical Association,* vol. 284, no. 20, pp. 2625-2631, 2000.

[14] Food and Nutririon Service, "National School Lunch Program," U.S. Department of Agriculture, 2012. [Online]. Available: http://www.fns.usda.gov/cnd/lunch/AboutLunch/NSLPFactSheet.pdf.

[15] Centers for Disease Control and Prevention, "Oral Health for Adults," 10 July 2013. [Online]. Available: http://www.cdc.gov/OralHealth/publications/factsheets/adult_oral_health/adults.htm.

[16] Centers for Disease Control and Prevention, "2012 Codebook Report," 2013.

[17] Centers for Disease Control and Prevention, "2012 Kansas BRFSS," Kansas Department of Health and Environment, 2013. [Online]. Available: http://www.kdheks.gov/brfss/.

[18] Centers for Disease Control and Prevention, "2010 Kansas BRFSS," Kansas Department of Health and Environment, 2011. [Online]. Available: http://www.kdheks.gov/brfss/.

[19] American Dental Association, "Breaking Down Barriers to Oral Health for All Americans: The Role of Finance," 2012.

[20] Kansas Mission of Mercy, "Past Projects," 2012.

[21] Kansas Misson of Mercy, "Kansas Mission of Mercy - Garden City: Patient Characteristics, Needs, and Satisfaction," 2008.

[22] Bureau of Oral Health, "Elder Smiles 2012," 2012.

[23] National Program for Cancer Registries, "United States Cancer Statistics (2010)," 2012.

[24] American Cancer Society, "Cancer Facts & Figures 2012," 2012.

[25] Kansas Cancer Registry, "Multiple Year Report: Cancer Incidence and Mortalty in Kansas, 2000-2009," Kansas City, 2011.

[26] Centers for Disease Control and Prevention, "Cancer of the Oral Cavity and Pharynx (Invasive): 1979-2009," 2012.

[27] W. J. Blot, J. K. McLaughlin, D. M. Winn, D. F. Austin, R. S. Greenberg and S. Preston-Martin, "Smoking and drinking in relation to oral and pharyngeal cancer," *Cancer Res,* vol. 48, no. 11, pp. 3282-3287, 1988.

[28] Centers for Disease Control and Prevention, "The health consequences of smoking: A report of the Surgeon General," Atlants, 2004.

[29] International Agency for Research on Cancer, "Smokeless Tobacco and Some Tobacco-specific N-Nitrosamines," Lyon, France, 2007.

[30] Kansas Tobacco Use Prevention Program, "Kansas Youth Tobacco Survey 2011-2012: Distribution of Youth Tobacco Use," 2012.

[31] B. A. Dye, S. Tan, V. Smith, B. G. Lewis, L. K. Barker and G. Thorton-Evans, "Trends in Oral Health Status: United States, 1988-1994, 1999-2004," *Vital Health Statistics,* vol. 11, no. 248, 2007.

[32] American Dental Association, "Fluoride: Nature's Cavity Fighter," vol. 136, no. 12, p. 1783, December 2005.

[33] Centers for Disease Control and Prevention, "Other Fluoride Products," Department of Health and Human Services, 2011. [Online]. Available: http://www.cdc.gov/fluoridation/other.htm#2. [Accessed 2013].

[34] Centers for Disease Control and Prevention, "Community Water Fluoridation," Department of Health and Human Services, 2012. [Online]. Available: http://www.cdc.gov/fluoridation/index.htm. [Accessed 2012].

[35] Department of Health and Human Services, "Review of Fluoride: Benefits and Risks," 1991.

[36] Centers for Disease Control and Prevention, "Cost Savings of Community Water Fluoridation," September 2009. [Online]. Available: http://www.cdc.gov/fluoridation/fact_sheets/cost.htm. [Accessed 2013].

[37] Centers for Disease Control and Prevention, "Dental Sealants," Department of Health and Human Services, 2012. [Online]. Available: http://www.cdc.gov/oralhealth/publications/factsheets/sealants_faq.htm. [Accessed 2012].

[38] Bureau of Oral Health, "2011-2012 Kansas School Screening Program," 2012.

[39] Bureau of Oral Health, "Mapping the Rural Kansas Dental Workforce," 2011.

[40] Bureau of Oral Health, "Kansas 2009 Oral Health Workforce Assessment," 2009.

[41] Bureau of Community Health Systems, "Federal Health Professional Shortage Area Overview," Kansas Department of Health and Environment, [Online]. Available: http://www.kdheks.gov/olrh/SD_overview.htm.

[42] Legislative Division of Post Audit, "Kansas Dental Practices Act: Determining the Impact of the 1998 Changes to the Act," 2007.